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Public Health as an International Problem*

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WE are meeting tonight in the midst of a cataclysm more ruthless, barbarous, and destructive than anything the human race has ever experienced. Military victory now seems assured, but the residual problems which this war will leave in its wake far transcend in difficulty and ominousness the problems which we have thus far faced. It is one thing to win a war; it is quite another thing, as we found in 1919, to win a peace. This war has unloosed hatreds and the desire for revenge so intense and so widespread that they will smolder long into the future. The evil consequences of what mankind has done in the last five years will be alive in the world when our children's children are carried to their graves.

Moreover, we know now, as we did not know in 1919, that modern war and modern civilization cannot survive on the same planet. We cannot keep both. One or the other has to go. We cannot have robot buzz-bombs and public health in the same world. We cannot develop the destructive powers of physics and chemistry as they are being developed now and at the same time keep our schools and hospitals and cultural institutions intact. The bridges over the Arno in Florence are gone. How could we expect otherwise when men take dynamite and TNT into the heart of Florence?

As we look into the future the picture is frankly frightening. Let us not minimize it, or dismiss it with facile optimism. It is a picture of expanding physical power, of mankind armed to the teeth with increasingly destructive weapons as science and technology go forward on their triumphant march. We are faced with a question which we cannot dodge: Can that science and that technology be brought under control? Is man to be the master of the hurricane forces which he is creating or is he to be their victim? If science were standing still, if no new powers were to be added to those already in man's possession, the problem might eventually find solution. But, of course, the idea is fanciful. We are merely at the beginning of progress in our technologies. Physics and chem-

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istry have barely got started in showing us what force really means. New powers and weapons are just around the corner, powers and weapons which the utmost wisdom could scarcely be trusted to use aright—airplanes larger, faster, and more deadly than those now employed, explosives capable of far-flung destruction beyond anything we dream of at the moment. How are we going to use these airplanes and explosives? How can we reconcile them with the progress and happiness of mankind?

Some years ago the organization with which I am connected—The Rockefeller Foundation—built a school of public health in Warsaw for the training of public health personnel. It is gone now—obliterated in the fraction of a second by a single high-power bomb. We built a school of hygiene and tropical medicine in London. The whole side of it, including the library, has been blown up. We built institutes of public health in Sofia and Budapest and Zagreb and Bucharest. Whether there is anything left of them today, we do not know. We built a library at the University of Nankai. It is completely demolished—not one stone left upon another. We built in Peiping the finest teaching hospital and medical school in all Asia. Whether any part of it will survive when the Japanese withdraw is anybody's guess.

But this is just bricks and mortar. Look at the situation from the standpoint of personnel and the training of intellectual leadership. For years The Rockefeller Foundation has been supporting work in the physical and social sciences at the University of Leyden in Holland and the three Czech universities of Prague, Brno, and Bratislava. Five years ago the Germans closed all these institutions and many of the professors and students were arrested and shot. Similarly the five Polish universities were closed, some of them were destroyed and their faculties were dispersed and slaughtered. The University of Oslo in Norway must also be added to the list of bloody casualties. In France the University of Strasbourg, the Institute of Ethnology, and the Center for the Study of Foreign Affairs in Paris are only a random sampling of the institutions with which the Foundation has had a long connection and which have been suppressed with violence. In China what has happened to schools and universities is a story of brutality for whose counterpart we would have to go back to the Dark Ages.

What does it all mean? Are the efforts of one generation to be wiped out by the hatreds of the next? Must mankind look forward to having its schools periodically destroyed, its homes and cultural achievements periodically obliterated—with nothing that we cherish safe from peril, with no bridges over the Arno that can be guaranteed against human violence?

This is the kind of future we face. This is the problem that awaits us when the fighting is done. What are we going to do about it? We cannot go on as we have. Mankind has at long last come to the end of a road.

The answer is obvious, and it lies in the tentative beginnings that are now being made at Dumbarton Oaks. This country and the other countries of the world are confronted with a great decision, an insistent demand for the exercise of human intelligence on an unprecedented and daring scale. That decision calls for nothing less than the organization of the family of nations into an effective working unity. It means that we must marshal on the side of peace and fair play all the constructive resources to which access can anywhere be had—spiritual resources, educational resources, the common hopes of people in all countries, the ties that bind the human race together

across boundary lines, the innate decency of the masses of mankind when freed from perverted leadership, the hunger of plain men everywhere for justice and truth if only someone will tell them what they are.

This great effort to build defenses against our own violence cannot be a patch job. There is nothing now left to patch. It calls for bold and daring construction. We must be fearless in our devising, ready to scrap the shibboleths and catchwords about nationalism and sovereignty which betrayed us in 1919 and which for a century have cluttered up our thinking. We must be prepared for sacrifice, for nothing worth while is ever gained without it, and no nation can bargain itself into security. We must be ready to pool resources and assume responsibilities on a scale that will run counter to traditions and techniques which have long been cherished. In brief, we must be prepared for ideas and practices that may seem to some of us revolutionary, for the robot buzz-bomb is revolutionary and the new explosives that are on their way are revolutionary, and unless we meet revolution with revolution, we shall find ourselves overwhelmed by forces which are out of control.

The danger is that we shall do too little, that we shall be fearful of making too many concessions, timid about venturing too far, that we shall whittle away a strong plan in an attempt to compromise with a weak one, that we shall try to ward off a hurricane with merely a windbreak. Already voices of caution are being raised, and we are being warned that there are some steps that the United States cannot take without too violent a break with tradition. One of our more prominent columnists is talking about "the folly of challenging an ancient and cherished prerogative." But the robot airplane is challenging civilization itself and the possibility of decent human life on this planet; and that, it seems to me, is far more important than the preservation of a cherished prerogative. Give us another ten years in the development of robot bombs and rocket guns and there will be precious few prerogatives left to anybody.

I do not have to suggest that the great decision which we and the other nations must make in the near future is bigger than any question of politics or partisanship. Any person or any group that tries to gain selfish advantage from this attempt to put international relationships on a stable basis is guilty of a crime which history will never condone. Let us be frank about the matter: We bungled a unique chance in 1919; this may be the last chance we shall have. What we do in this generation may well decide the kind of civilization, if any, which is to dominate the globe for centuries to come.

But what has all this to do with public health? In answer, I would say that no legal plan, no fixed formula, can by itself guarantee that the world will not be torn to pieces whenever passion and emotion gain the upper hand. The community of nations has got to have a kind of intellectual and spiritual integration before it can be absolutely sure that the forces of violence are under control. Consequently there must be developed for international life new areas and techniques of coöperative action which will fit the facts of the era upon whose threshold we are now standing. We need rallying points of unity, centers around which men of differing cultures and faiths can combine, defined fields of need or goals of effort in which by pooling its brains and resources the human race can add to its own well-being. Only as we begin to build, brick by brick, in these areas of common interest where coöperation is possible and the results are of benefit to all, can we erect the ultimate structure of a united society.

I think of public health as one of these rallying points of unity. Health is something that all nations desire, and no nation by the process of gaining it takes it away from another. There is not a limited supply of health for which nations must compete. Rather, every nation by promoting its own health adds to the better health of other nations, just as by assisting in the public health efforts of other nations we protect ourselves. Here in brief is a field of common interest to the race of man everywhere on the planet. Interpreted in broad, positive terms to embrace physical, mental, and moral fitness, it can be a nucleus of international activity which will encourage emulation in other and more difficult fields. What the League of Nations did in Geneva through its International Health Organization can be the starting point and basis of a far broader and better supported work. A world-wide epidemiological intelligence system, the standardization of biological products, the organized exchange of public health personnel to broaden the technical outlook and stimulate the imagination of health officers, the supplementation of public health activity in countries where it is inadequate, the development of minimum standards of acceptable public health work that can be applied on a world-wide basis, the creation of commissions of experts and international conferences on such subjects as malaria, yellow fever, rabies, nutrition, housing, rural hygiene, physical education, social security—these are only samplings of the activities which could profitably be pursued, perhaps on a regional basis, by a new International Health Organization. Activities of this type could develop new habits in international relationships. They could dig new channels of thought and establish fresh methods of approach. They could lead the way in showing the countries of the world, now separated by hatreds and passion, what it means to play ball together.

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Perhaps I have given the impression that the chief purpose of these activities in public health is the stimulation of an international unity which will save the world from shipwreck. That that objective is a challenging and fundamental aspect of public health work on an international scale I do not deny. But work in public health which disregards flags and boundary lines has become in our generation essential to the safety of the human race everywhere. We cannot have airplanes crisscrossing the world from every direction in the space of a few hours' time and expect to keep our old ideas of territorial sovereignty and our old methods of quarantine. Those ideas and methods have suddenly become obsolete. Public health can no longer be thought of exclusively in national terms. In a world as closely knit as ours, what menaces one country menaces all, whether it be disease or economic disaster.

Take, for example, the yellow fever situation. As you know, there has never been any yellow fever in India or in the Orient, although the chief carrier of yellow fever, the *Aedes aegypti* mosquito, is everywhere present there. Consequently no immunity against the disease has been built up, as it has been in continents like Africa and South America where yellow fever has long been prevalent. A country like India is therefore a tinderbox, ready for a conflagration of cataclysmic proportions. It would take only a single infected mosquito to break down all the barriers of quarantine, vaccination, and medical vigilance; and the airplane is ready at hand, able to carry insect passengers just as it carries human passengers. No nation by its own acts alone can protect itself from such an overshadowing menace. It requires united, coöperative action in

which boundary lines are overlooked and conceptions of sovereignty are relegated to the limbo of forgotten things.

The gambiae mosquito furnishes us with another classical illustration. Its home, as you know, is the African tropical belt, extending from the southern border of the Sahara Desert to the Zambesi River. For centuries it has been the scourge of Central Africa, a carrier of a serious and often fatal type of malaria. Until 1930 this mosquito was unknown on this side of the Atlantic. But a new line of planes began to bring passengers to Brazil and there was nothing to prevent the gambiae from coming along, too. And the gambiae came, with results so destructive that even today the terror of that visitation is deeply engraved on the memories of the inhabitants of northeastern Brazil. It took years of effort and millions of dollars to eradicate the species from its new home, but that result was finally accomplished, and it was hoped that the fumigation of incoming planes would prevent another incursion. But that hope was in vain. Last year live gambiae mosquitoes were found in dwellings near the Natal airport, and the beginnings of another conflagration were in the making.

Thanks to the efforts of the Brazilian and United States authorities, the immediate situation is now in hand. But it poses a problem of larger significance which cannot be evaded. The safety of the Western Hemisphere, now within a few hours' flight across a narrow ocean, can no longer be left to the uncertainties of a flit-gun campaign. If the Americas are to be protected adequately, the breeding places of gambiae, wherever in Africa or elsewhere they may be found, must be eradicated or controlled. The campaign must be carried to the sources of infestation. It can no longer be defensive; it must be offensive.

That campaign is now under way—at least the beginnings of it. Brazilian health representatives have been in West Africa, and American representatives are there today. Shades of the isolationists of 1919! What business has our official medical personnel in West Africa? Why can't we stay home and mind our own affairs? The answer is that this newly made world which the airplane has tied together has lost its frontiers. Whether we like it or not, the propinquity of modern life now confronts us with inescapable demands for new techniques. We are living in the 20th century and we cannot retrace our steps back into the 19th. For better or for worse we find ourselves in an era in which our only hope of survival lies in collaboration across boundary lines.

May I give one more illustration of the international character which public health must assume in this new world? The war is going to bring China into the forefront among the nations. A long and distinguished civilization and a great people are at last about to take their place among the leading forces of the world. In the near future, as soon as the war is over, the relations of the United States and the other nations with China will be close and intimate. We shall sell to her our refrigerators and farm machinery in exchange for the goods and services which she will provide; and easy access by plane and ship will promote the flow of ideas and cultural contributions back and forth across the Chinese border.

But China has a total of 658 hospitals for 460,000,000 people. In the United States there are more than 6,000 hospitals for 130,000,000 people. In China there is one well trained physician for every 70,000 of the population, whereas in this country there is one physician for every 750 of the population.

Even these figures only partially in-

dicate the magnitude of the need, because they do not take into account the fact that in China disease is so much more prevalent than it is here, and the conditions favoring its development are so much more acute.

Let us glance at some of the figures. Cholera is reported every year in China; there were 100,000 cases in 1932, 65,000 cases in 1942, 17,000 cases in 1943. Bubonic plague had approximately 6,000 cases in 1942. It is estimated that there are about 6,000,000 cases of dysentery annually, 90 per cent bacillary, 10 per cent amebic. The estimated number of cases per annum of typhoid fever is 700,000; of smallpox, 500,000; of diphtheria, 360,000; of scarlet fever, 180,000. Epidemic meningitis is estimated at 100,000 cases per annum; malaria, 21,000,000 cases per annum; schistosomiasis, 10,000,000 cases per annum. Active tuberculosis is estimated at 36,000,000 cases, 8 per cent of the population. Under-nutrition is so widespread that no figures of any kind are available.

Here is a country about to be linked by intimate ties with the rest of the world. Airplanes will establish new contacts and new trading centers at a thousand different points. The flow of goods and personnel will be a constantly rising tide. Does anyone say that the rest of the world has no legitimate concern and no responsibility for the health conditions of China? From now on, we shall be living in growing intimacy and increasing contact with those health conditions. I am not talking about charity, although I assume that this virtue is still valid. I am talking, rather, about the problem of trying to maintain a healthy life for ourselves and our children side by side with disease as rampant as it is in China. I wish that those who speak so glibly of "globaloney" could see this picture of the international aspect of public health. In attempting to be hard-boiled and realistic they succeed in being merely unintelligent. The Levites of this world no longer have the option of passing by on the other side. They do so at their peril. In this interrelated civilization compassion for the man who falls among thieves has become an inescapable necessity. Whether it is malaria or cholera or plague or tuberculosis or whatever the disease may be, the nations of the world face these enemies of mankind not as isolated groups behind boundary lines but as members of the human race projected suddenly into a frightening propinquity. We did not plan it this way, and science did not plan it this way. We wandered unwittingly into this situation. But here we are—all nations and races jammed together into a single community, tied together by bonds which cannot now be severed. It is indeed one world—one future—one destiny.

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Perhaps I have elaborated the thesis at too great a length. In a word, it leads to this conclusion: The day has passed when any one nation can live unto itself. It cannot even die unto itself, for the whole world would then be chained to a body of death from which mortal infection would flow to the rest. The hour for decision has come. Indeed it came twenty-five years ago and we are very late. We who are interested in public health have a challenging opportunity to lead the way, to lay one of the cornerstones of the new structure, to develop the thinking that must be done in expanding geographical terms, to serve the larger loyalties which must underlie this new world if it is to keep abreast with the facts of the 20th century.

Local Responsibility in Public Health Administration*

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WHEN Dr. Underwood, in completing the duties of the President of the American Public Health Association, comes to the close of this three day conference and relinquishes the gavel, he will appear in a typical rôle, namely that of a state health officer indulging in the pastime of transferring an added responsibility to a local health officer. On that topic, you should know, we local health officers are given to more or less chronic grouching. We never weary of moaning about the multiplicity of new activities and duties which federal and state bureaus of health prescribe for us.

Perhaps, because our days are rounds of endless trivialities, which limit our horizon and obscure our perspectives, it is difficult for us to envision the panorama of purpose and plan of the general staff of nation and states, whose overall recognizance and knowledge of all sectors permit the planning and direction of our activities in coördinated fashion. We realize of course that a sound physical status for all of our population is a first requisite of national defense, and that each of our communities, as a part of the whole, must exert itself to insure this status. Nevertheless, at times we entertain fancies that we are the victims of an unfair division of labor, funds, and personnel.

We complain of the demands of increased population. Had normal conditions prevailed since 1940, some three or four millions of people would have been added to our local responsibilities. Instead, some twelve million persons in the armed forces, for whose health and welfare the federal government has assumed responsibility, have been subtracted from our concern. If, in certain areas where industries pertaining to the war effort have been intensified, there is some justification for complaint of the population overload, then it must follow that in many other areas there is population loss and one might expect lessening of local public health demands. In addition we must not forget that industry itself has assumed responsibility for the maintenance of health of several millions of workers who were formerly dependent on public agencies for health protection. One might mention other reliefs in population demands upon us. It is not, therefore, increased population of which we have a right to complain.

We speak of new public health problems. I doubt if we mean that, for on analysis, with only minor exceptions, there are no new problems. There are only new facets of old problems. Always mothers have had babies, always children have suffered from childhood infections, always large numbers of persons have been malnourished. Always, too, women have engaged in manual labor, and the fact that they have been

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transplanted from the drudgery of home and field to the mechanical processes of industry does not necessarily bespeak greater physical hazards or deterioration. What we do mean by new health problems is only a clearer recognition of old ones and a call for greater application of effort toward solution of them.

Several decades ago it was obvious that national and state public health agencies were not in position to apply public health measures in practical manner. To explain, it has been said that public health is the sum total of the health of individuals. The education which produces it is therefore something which cannot be supplied to the populace in carload or truckload lots from national or state capitals. It must be dispensed to individuals in ounces, drams, and drops, and its dispensing to those who need it must be insured. This must be done by the local agency who can know how, when, and where individuals can be reached, and who can inspire the local community to want and to support facilities necessary to its general health preservation. It cannot be done in strict accord with any set pattern, for each community has its own characteristics and customs which no transcendentalism or government fiat may affect. It must come from local, voluntary reaction.

Our states are made up of various units of local government. Our democratic form of government presumes that these shall be granted every privilege of local self control, and it is only when they fail to exercise it properly or when they infringe upon the rights of other units that the state is justified in intervening. This is as true in the preservation of public health as in the preservation of law and order. More so, for since communicable infections have no respect for political boundaries, and since no unit may tolerate the prevalence of contagion within its jurisdiction without endangering the health and lives of citizens of adjoining units, it is more than a privilege of local control; it is a duty which the state must insist be performed. It has insisted by enacting legislation granting to the various units police powers for the protection of the public health and making it mandatory that they exercise these powers.

This mandate however often fails to envision the whole of the modern public health movement and, for the most part, applies only to the control of communicable diseases or of insanitation. While few local units wilfully evade it, there are far too many which have failed, either through apathy or lack of means, to provide proper facilities for carrying out their obligations, secure in the belief that they may in emergency rely upon state agencies.

Lack of means is the greater deterrent of the two and is often more imaginary than real, for while we public health workers may clearly realize justification for public health expenditures it is not easy for many taxpayers to do so. We are irked by their lethargy and impatient with their delay in acceptance of our promises of the benefits of efficient health services, forgetful of the old adage concerning persons "convinced against their will" and that it is only through their spontaneous conviction and coöperation that the services we propose will be utilized.

Sometimes such communities are convinced by emergency, sometimes by demonstration. The basis of the demonstration method, originated by voluntary organizations and by several of the foundations interested in stimulating public health procedures, is that of a financial incentive or grant-in-aid for a temporary period. By reason of many successful demonstrations it has become a federal philosophy which promises complete permanency. A grant-in-aid for public health purpose in those communities burdened by activities of

national import, the cost of which should be distributed over the whole nation, appears most justifiable. Likewise it appears a necessity in those communities with actual lack of means. Perhaps we can agree that it serves a useful purpose in broadening the scope of activities of all public health departments until these activities become accepted as a local responsibility or until local means of support become available. We may also agree that its use can result in a general uplift of public health standards, even though it may be debatable as to whether all communities require or demand the same quality or quantity of such services.

It is very easy for those of us who have had to contend against the old-time penuriousness in public health expenditures to become overly enthusiastic about grants-in-aid. But already state health officers are rumoring that formerly self-reliant communities are substituting these grants for tax funds previously levied for support of many local health activities in order to divert such tax funds to other purposes; that other communities threaten to discontinue proven, needed activities if grants-in-aid are not forthcoming; that still others are demanding these grants, not as a need, but as a right.

There is evidence that in some communities these grants are encouraging public health patterns much too large for the cloth and in excess of the community needs and resources. There is also the attendant danger that because of their source, local taxpayers feel no concern as to the manner in which they are expended, a fact which may lead to extravagances and waste, discrediting the wisdom of all public health expenditures and the business prudence of health officials. We as friends of public health progress must insure that a grant-in-aid shall be used only as a gentle stimulant and not as a narcotic which soothes its victim to complacency and contentment while its effects last, and sends him into collapse when it is withdrawn.

That, thus far in the dispensing of these grants, there has been no grave evidence of usurpation or obnoxious autocratic direction of local health activities, has been due to the integrity and sincerity of federal and state officials who administer them. It must be remembered however that present policies may fluctuate and in this fluctuation there is inherent danger. The power to give implies the power to take away. If we in local communities permit ourselves to become so wholly reliant upon these grants that withdrawal of them means catastrophe to our cause, it means that we may yield to centralized bureaucratic control. While this may be for our betterment, it is repugnant to our democratic ideas and ideals.

Much depends therefore on the degree to which we permit our communities to become dependent upon these grants. They do not depend upon them for support of their public schools or fire and police departments. Is protection of the public health a lesser responsibility? Our public health education can be regarded as failure if it cannot teach our people the value of community supported and controlled local health activities which meet their wishes and supply their needs. Neither individuals nor communities can continue to accept unwarranted contributions without sacrifice of character. We too must anticipate the possibilities of ultimate readjustment and reconversion.

A Coördinated School Health Program

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IN organizing or reorganizing a program of community health education it matters not from what field the initiative comes, the promotion inevitably will devolve upon the group stronger in local leadership.

In Lewistown, Mont., this meant the schools since there was at the inception of the program no organized health department in the sense that it now exists as a County Unit. The school system on the other hand had for two generations been a compactly organized and authentic factor of community living. This advantage being coupled with a fortuitous leadership in the school administration, it is not difficult to understand that the present County Health Unit, strongly educational in character, grew out of the school interest in health education.

That this incursion of education into public health education is not resented was indicated by the election of C. G. Manning, Superintendent of the Lewistown Public Schools, as President of the Montana State Public Health Association, following an address telling of the program briefly described in this article. The President of the State Medical Association voiced the approval of his group "without reservation, of the principles and procedures involved." It would seem that real coördination is in sight.

Lewistown is a central Montana city of some 6,000 people. It is the county seat of Fergus County and the center, professional, educational, and commercial, of a large ranching area, extending well beyond the boundaries of the county. Fergus County itself covers an area of 4,250 square miles, about the size of the state of Connecticut, giving each of its 8,000 citizens outside the county seat, on the average, half a square mile of territory.

The program here described was developed in coöperative planning with the Health Education Service of the Maternal and Child Health Division of the Montana State Board of Health.

The planning began, to quote Superintendent Manning, "with progress in our own thinking," the outcome of this thinking having been the shifting of focus to functional health of the individual child and the recognition that this can be achieved only by way of the home, which in turn is conditioned by the total community environment.

In making plans for this vitalizing and socializing of the school health program the least privileged communities were kept ever in mind and problems and procedures reduced to the lowest possible terms. But never below the irreducible minimum of health essentials.

The preliminary planning involved three steps: (1) identifying these irreducible minima of healthful living; (2) determining whether these essentials fall within the resources of an ordinary school system in an average community; and (3) deciding what changes in the existing local school situation were necessary to make school living really a continuous optimal experience.

When faced squarely, pencil in hand, ruthlessly setting down in two categories those practices "essential to

health" and those "not *essential* to health" (although perhaps socially desirable), the column of essentials emerged reassuringly short:

1. Food, clothing, and shelter which are health permitting
2. Protection from physical hazards of disease and accident
3. Protection from mental and emotional hazards

No one was willing to concede these to be out of reach of the American child in general, or the Lewistown child in particular.

COMMUNITY ENVIRONMENT

The first problem then became: Can Lewistown provide adequate food, clothing, and shelter for its children and protect them from physical and social hazards? This involved a study of the social structure of considerable significance. The findings were set forth graphically by means of the Russell Sage Foundation social survey symbols glued in place on a large map of the city.

Analysis indicated incoördination to be the key difficulty. Whether the 64 organizations and four coördinating groups are typical of the small American city is not within the scope of this study to determine. Certainly no element ordinarily encountered in community living seemed to be unrepresented in this town of 6,000 people.

SCHOOL ENVIRONMENT

The school environment was next made the subject of careful scrutiny, that it present no essential health hazard.

1. Physical Environment—A survey of the school plant was conducted by the physics classes of the high school. This study covered lighting, ventilation, temperature, sanitation, seating, and safety conditions. This responsibility was assumed in all seriousness by the pupils, and their findings and recommendations were made actual use of in the final plans for the health permitting school environment.

All conditions immediately detrimental were corrected at once, and improvements which did not entail great expenditure were made. Ventilation was improved by placing grilles in doors, windows, and walls; playground surfaces were improved; more attention was given to window shades, sanitation, toilets, redistribution of seating, etc.

A long-time program of major changes was next set up. This program has been carried on steadily until it is now virtually accomplished. First the citizens voted several thousand dollars for major changes. These included new toilet fixtures, new plumbing, and increased water supply in two buildings; new roofing for two buildings, new blackboards to conserve eyes, new shades for one building to improve lighting; new lighting fixtures in some rooms requiring considerable artificial light during the school day; new walks to increase safety; new walls in and about boiler rooms; changes in wall decorations to improve lighting and appearance; changes in the treatment of floors to improve sanitation, safety and appearance.

2. Social Environment — In the schools the interrelationship of mental, physical, and social health was already understood and its essential nature appreciated. Special consideration was given at P.T.A. meetings and conferences to encourage the home to assume its rightful responsibility for the health and social activity of its children.

A healthful social environment within the schools was promoted by the general teacher attitude and in the high school by the work of the special departments of vocational guidance, and physical education, working together with a trained personnel director. A course in social relationship was already being given as part of the social science curriculum in the high school.

In the beginning of the present program of threefold health, a survey of student opinion in the high school was made relative to personal social problems and the kinds and amounts of social activities desired. These opinions served as criteria for evaluating the social environment at school, and a guide for adjustments.

In the junior high school social activities in judicious amounts were introduced and special effort was made to secure participation by boys and girls who found difficulty in making social adjustments.

3. Curricular Environment—A survey of pupil load was made, in order to avoid either extreme, the overcrowded and overstimulating curriculum, or the unchallenging one. In the high school overloading appeared as the most serious among the conditions discovered. To obviate these curricular hazards, the programs were checked and a more personal guidance program instituted which included all classroom teachers as well as the two specially trained staff members.

The elementary school curriculum presented only one specific danger, fatigue. This danger is inherent in the plan of organization, a modified platoon, particularly when the work with special teachers begins with the first grade as was the case here until last year. It is the greater when teachers keep the children on their toes with interest as they do in Lewistown. The teachers consciously planned to counteract this recognized tendency not by making their teaching less interesting, but by definite and frequent relaxation periods.

THE SCHOOL HEALTH PROGRAM

The prerequisite of the actual essentials of healthful living at home and a safe school environment being planned for, the school health program presented the basic three-part organization: health service which puts the child in as nearly optimal condition as remains possible to him; health supervision, which keeps him so; and, *finally,* health instruction which renders him progressively self-supporting in health. While it is impossible to separate these three aspects of any school health program, the major responsibility rests as follows:

Service—physician assisted by nurse and to some extent by teachers

Supervision—nurse assisted by teachers

Instruction—teachers assisted by nurse and physician

I. HEALTH SERVICE

From the first, the goal of the full-time county unit was held steadily in mind by local and state personnel. The President of the School Board (who was also part-time city health officer) and the Superintendent of Schools had already been quietly promoting the county unit, and had worked out details of a plan for pooling the funds allotted to health by the county, city, and school district, and the fusion of personnel. This plan was adopted later on in the working out of this program to the advantage and satisfaction of all concerned. At the beginning of the program the city and county health departments were separate, each under a part-time health officer who took part time from his local practice. One "school nurse" was paid jointly by the City School District and the State Board of Health. She was doing traditional school nursing and was responsible directly to the Superintendent of Schools. As reorganized, the services of the county, city, and school district are fused and this county unit is directed by a full-time health officer.*

* Since the regrettable death of the Director of the County Unit, a suitable full-time health officer has not been found, and the service is temporarily in charge of a local physician with public health experience who, however, is unable to give more than half time from his private practice. Every effort is being made to secure a competent full-time man.

A second public health nurse was added and the service of the two generalized, one serving the city and the other the rest of the county. The field of the city sanitarian now includes the entire county and the county physician serves also the city, according to a coöperative plan with the County Medical Society.

The work of the Fergus County Health Unit is the same in scope as that of the other units described in the *Report of the Montana State Board of Health* for the last biennium. All serve the schools as elements of the community organization, the director of the county unit being in each case the director of the school health service. This paper is concerned with the way in which the school district of Lewistown has worked out its problems of orientation within an integrated community health program.

THE TEACHER'S HEALTH

The most unusual feature of this school health service is that it starts with the health of the teacher. After some experimenting the following plan was adopted and works to the satisfaction of teachers, administrators, and physicians.

Every teacher is given a complete physical examination once a year, by the physician of her choice at a fee ($5) determined by the local medical group and paid to the physician by the Board of Education from school funds. The completeness of the examination is insured by the use of the form prepared for teachers of the state by Director of the Maternal and Child Health Division of the State Board of Health. This form is filled out during the examination and given to the teacher, the only report going to the Superintendent's office being a slip saying that the physician considers the physical condition excellent, good, fair, or poor; that examination does or does not reveal conditions which render the teacher's occupation dangerous to those about him or her; whether modification of program is recommended in the teacher's own best interests; and whether further medical care is recommended. No one but the teacher himself or herself sees the specific findings of the examination.

The teacher's health is further safeguarded by sick leave on pay; a reasonable teaching load; a somewhat higher than average salary schedule, no distinction being made between elementary and high school pay or educational requirements; a state retirement fund; a real right of free speech; opportunity to grow in service giving a wholesome feeling of accomplishment and security.

THE PUPIL'S HEALTH

1. Periodical Physician's Examination—

The director of the county public health unit makes an annual routine examination of the pupils of the five grades—1, 4, 7, 9, and 12, and all entering pupils.

The presence of parents is insured by scheduling the parent and pupil for a definite hour, which the physician takes pains to meet. The nurse makes the appointment with the mother. Since the time is adapted to their convenience, a very high percentage of mothers are present.

Uniformity of examination and consistency of recording are furthered by use of the form on the cumulative health record, prepared and furnished free on request to the schools of the state by the State Board of Health. Since issuance a year ago, its use is spreading rapidly.

The teamwork of the nurse and teachers in the follow-up of the recommendations is described under health supervision. In cases where pupils are unable to pay for service recommended, the Board of Education may pay from

school funds when the county physician or a voluntary organization has not been able to take care of the child's need. A considerable number of bills for glasses, dentistry, tonsillectomies, and supplementary food have been met by the school district.

2. Immunization—

Every effort is being made to secure protection against diphtheria and smallpox in infancy. Those pupils not yet protected or who for some reason are not referred to a family physician are immunized on entrance as a part of the school health program.

3. Mantoux Tests for Tuberculosis—

These are given routinely to all first year students in grades and high school, and to all new students. X-rays are taken of all reactors. Follow-up of all cases and of contacts is a part of the health supervision exercised by the public health nurses.

4. Emergencies—

The director of the unit is on call for accidents or sudden illness serious enough to need immediate medical attention.

5. Dental Service—

Dental service is on the private office basis. Dental referral cards are sent to every home at the first of the school year urging the parents to take the child to the family dentist. A report back to the school is requested of the dentist, and cards are supplied. The referral cards with the form for reply are furnished free by the State Board of Health.

6. Nursing Service—

The bulk of the work of the nurse in behalf of the school child falls under supervision in our threefold division of the school health program.

Certain of her functions, however, fall logically under service:

Assists the doctor in the periodical examination at school

Assists in giving inoculations and vaccinations, and Mantoux tests

Holds routine interviews with all pupils referred by the teacher

Makes routine inspection of all pupils of the grades not examined by the doctor

Answers emergency calls in case of injuries and illnesses at school

Includes the school age child in all phases of her family service, giving sick care when necessary, thus being sure that in protecting the health of the school age child she is not overlooking health situations in the home which influence the child's health

Also includes maternity, infant, and preschool service in her generalized program so that every effort is made to insure optimal health for the children who enter school at the age of 6 years

7. Nutrition Service—

Conditions have changed radically and rapidly during the period covered by the program. In the beginning the need for food was still acute and the WPA facilities were made use of during the first two years. The education of the pupil and parent was meanwhile concentrated on by nurse and teacher and county extension agent. Finally the combination of education and improved economic conditions in the home seemed to indicate that the emergency phase of school feeding might be considered past, and only the two procedures considered an essential part of any permanent school health service were retained.

a. Mid-session milk for those who in the judgment of the nurse and teacher would profit by extra nourishment, or those whose parents request that they have it. The judgment is based on the knowledge of the total food intake of the child. Because of the intimate knowledge of the pupils shared by the nurse and teacher, this knowledge may be considered unusually reliable.

b. Noon lunch for pupils who live too far away to go home at noon. In the 6 elementary grades one hot milk drink or milk soup is provided to supplement the packed lunch. In high

school a balanced hot plate and drink are served at exact cost.

Last year all school feeding was discontinued, tentatively. This was for three reasons: (1) it was becoming increasingly difficult to obtain help; (2) the turnover of teachers became so acute that anything outside the classroom teaching procedures took on extraordinary difficulty; (3) the most cogent, it seemed possible that the new prosperity which places adequate food within the financial reach of practically all families afforded the strategic opportunity to return the responsibility of feeding their children to the home. The school participated in an educational program carried on by the County Nutrition Committee, the aim of which was to prepare the mothers more adequately to assume this responsibility. It was evident, however, that there does exist an educational aspect of school feeding and that mid-session milk and a hot drink or soup with the carried lunch constitute features of the irreducible minimum of any school health program. It is definitely planned to reinstate these as a permanent feature of the school experience.

Thus far the war has not made serious changes in the food intake of the children of this community. Plans are being formulated to take care of the inevitable shifting and shortages which have come a little more slowly to this ranching and dairying county than to some other regions.

II. HEALTH SUPERVISION

It is impossible to separate supervision from service on the one hand and instruction on the other. The nurse is therefore inextricably bound up with the work of those who serve the child in the two professional groups—health and education. She is the key person in any public health program.

In the Fergus County Health Unit, one of the two nurses is assigned to the City of Lewistown which has a population of about 6,000. Naturally there is not much time for individual supervision of the child at school. Through her maternal, infant, and preschool program, the school child is served most effectively before he becomes a school child. Supervision of the school children at school is carried on chiefly through the teachers who have them under observation in small groups every day. The collaboration of nurse and teacher is so effectively worked out that it constitutes the most distinctive feature to date of this school health program. The fact that the functional interpretation of education is really accepted by these teachers makes health instruction which fails of application a recognized absurdity. Thus, teacher and nurse are brought together from their specific fields in a complete fusion of effort. The joint function, for want of a better term, is referred to as health supervision.

The Personal Folder—In this school system individualization had been developed to such a degree that a personal folder follows each pupil from kindergarten to high school. In the year of the beginning of the present health program, the first folders started in kindergarten had reached first year high school. It was a vehicle providentially at hand for the addition of, or rounding out of, records of physical health.

These folders in the elementary schools are kept in the desks of the classroom teacher where they are in constant use. In the junior and senior high schools, they are filed in administrative offices, readily accessible. At present the data routinely included are:

a. Cumulative health records carrying personal information from the kindergarten through the high school. Upon this form the findings of the medical examinations are recorded and all notations by physician, dentist, nurse, teachers, and social workers are

transcribed in condensed form. Emotional health is included and sufficient information regarding school progress to give a picture of the child as a functional unit.

b. All records, scholastic, social, and physical, other than those contained in the cumulative health records.

c. Copies of teachers' letters to parents, parents' notes to the school, and notations regarding conferences with parents or others concerning the pupil.

d. The teacher's yearly informal summarizing reports of the child.

The Nurse-Teacher Work Sheets—The implementing instrument for utilizing this fund of information about the child is the nurse-teacher work sheet. This is a detailed form upon which are checked for each pupil the specific goals for health improvement toward which the effort of teacher and nurse are to be directed. It is doubtful if dissipation of effort can be prevented without the focus that a common work sheet gives. At the end of every school year the year's health history as recorded on the work sheet is summarized and entered on the cumulative record. At the beginning of his next school year, new ones are prepared for the continuation of combined effort toward specific improvements. It is only as a result of itemized efforts that the cumulative result of improved general health can be achieved and the child's total condition raised progressively nearer and nearer the optimal.

After the first year's use of the nurse-teacher work sheet a plan was worked out obviating the duplication for the teachers of this work-sheet and the personal record already routinely kept by the teachers. The plan has proved satisfactory to all concerned.

Routine of Collaboration—The effectiveness of health supervision in the schools depends primarily upon the division of labor between teacher and nurse. With increasing demand for nurses in defense, and the multiplicity of extracurricular demands upon the teacher, this becomes increasingly important. Each has her peculiar field within which her contribution is most effectively and most economically made.

It is agreed by all concerned that in the generalized service the school child is served most effectively as a member of the family unit. In conserving the time of the nurse it is most important to minimize the time spent on the school premises.

The Lewistown plan was worked out by the elementary supervisor and the present public health nurse. It omits entirely the routine visit of the nurse to the school.

Visits on behalf of school children are made on request of teacher or principal on a "request for nursing services" form. These forms are filled out every morning and placed on the principal's desk in each building. The elementary supervisor collects these every day in her rounds, and leaves them on the nurse's desk in her office. At the same time she takes up the slips left previously on which the nurse has written the report of the call including the requested information. This plan works simply and smoothly and, most unusual of all, promptly. Teachers for the most part have this report the next day. The nurse's time is conserved for her professional services.

Needless to say, the nurse is not concerned with attendance except where health problems are involved.

Emergency calls are telephoned direct to the nurse's office. These are becoming increasingly infrequent with teachers' growing ability to deal with situations and the elimination of safety hazards from the school plants.

Since the nursing service is generalized, every visit, however initiated, is a complete visit to the family as a whole.

Conferences at School—The time of the

nurse is conserved by the readiness of parents to come to the school to talk over all manner of problems. Many a home visit is obviated by a school conference with the mother, and many a visit is made unnecessary by the principal and teacher including health as a matter of course in their conversations with parents.

Last year the scheduled parent conference took the place of the monthly letters to the home. (The school system had long since discarded the report card with its formal grading.) Defense activities recently have interfered with this scheduling of conferences so that the informal letters are substituted when the personal conference is not practicable. Health takes its place in the unit picture of the child under consideration thus, incidentally, reducing still further demands on the nurse's time. The cumulative health record, and the nurse-teacher work sheet afford definite data for the teacher in these conferences.

The unscheduled parent conference, however, is more important, and indicates a rapport between the school and home which makes possible the general response to the regular conferences. It was this very unusual freedom of intercourse between school and home that gave first indication to the new Health Education Service that here was fertile soil for a proving ground. The Parent Teachers Association is a going concern and the freedom of discussion of common problems takes the place of much individual discussion.

Education of Teachers in Service—The proposal of this more active rôle of the teachers in personal health supervision brought a certain amount of uneasiness on their part as to whether they were qualified to form judgments in this field.

The local medical group was requested to give a series of talks to the teachers on the characteristics of health in childhood and the essentials of healthful living. One lecture was illustrated by children chosen to demonstrate prime condition. In addition to the reassurance these lectures gave the teacher, the giving of them fostered a spirit of sponsorship in the medical group.

Health literature was furnished each building for the teachers' use. Textbooks on the college level in personal and public health were bought, *Hygeia* was subscribed for, and lists of reference material for loan and for free distribution by the State Board of Health were supplied.

The most important assistance for the teachers came, as always, from the nurse. In her frequent and friendly contacts they found an ever present help, and feelings of insufficiency were short lived.

III. HEALTH INSTRUCTION

The more completely integrated a program is, the more difficult an organized presentation. The work of the classroom teacher in health supervision merges so completely with the application phases of health instruction that much of the discussion would be appropriate under either head. Particularly is this true here where all instruction is on the unit activity basis, that is, is functional in aim.

Health is taught here as a basic scientific body of subject matter with the aim of developing a recognition of and respect for cause and effect which will result in present application of the facts taught and in successful adaptation to changing conditions.

Present space precludes discussion of teaching procedures.

The most critical year of the program described above lies just ahead. The school year 1944–1945 opens after two years of war have made inevitable inroads upon the program described above, but since the planning had been

from the first in lowest terms, with the participation of the whole citizenry provided for, the war emergency has been less destructive in its effects than might have been feared. There has been compensatory increase of effort in some directions which partially offset the depletion of human resources in others.

Most serious of all is the diminished medical service and the consequent overwork of the nurses, sanitarian, and all who in any way can carry a fragment of the physicians' load. The examinations of school children have been discontinued. The annual examination of teachers is carried on as usual, but more hurried in some cases, as the pressure on the doctors increases. The incidence of communicable disease has increased as it has throughout the state.

The increased responsibility assumed by the home and the teachers, however, has gone far toward compensating for the lessened professional service. While there are no numerical data, the concensus is that noncommunicable illness has decreased.

The children are reported as being definitely better fed, and the mothers more appreciative of the help of the home demonstration agent, the social worker, and the visiting nurse. The teachers are taking over more of their rightful rôle in guidance, and the time of the public health nurses is thereby still further conserved.

The encouraging feature of the situation is that the responsibilities being assumed by the school and home are coming to be recognized as their rightful prerogatives and not to be relinquished when the technical health services are restored. With the post-war return to pre-war staffing, a greatly increased effectiveness is to be expected.

Typhoid Vaccine Studies IX

Intracutaneous versus Subcutaneous Vaccination for Initial Immunization

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IN 1939, Siler and Dunham [1] published a preliminary report on the re-immunizing effect of 0.1 ml. of vaccine intracutaneously administered. During the following year, Longfellow and Luippold [2] reported results on an extension of the preceding work.

Since this time, it has been asked why the intracutaneous route for the establishment of *initial* immunity has not been adopted, inasmuch as it had been recommended for revaccination. The answer, of course, is that, although there is a mass of clinical and experimental data on the effectiveness of subcutaneous vaccination, there are no comparable data on the efficacy of vaccination by the intracutaneous method. Realizing the capacity of the skin to produce antibodies, an investigation of dosage and routes of administration of typhoid vaccine was begun here early in 1940, but this study was interrupted by the intervention of other and more urgent work, and was postponed until time and material again became available.

Meanwhile, we had made an observation on a diminutive-scale comparison of these two methods of vaccination. During the latter part of 1942, we received specimens of serum from Morgan [3] as control material on other sera included in an investigation being conducted by him at that time. Eight of the control sera were from persons who had been inoculated intracutaneously with 0.05, 0.1, and 0.1 ml. of commercial T.A.B. vaccine, while 7 were from individuals who had received 0.5, 1.0, and 1.0 ml. of the same vaccine subcutaneously. The sera of these 15 persons were titrated for protective substances [4] active against *Eberthella typhosa*. Results of these titrations have been recorded in Table 1.

TABLE 1

Results of Serum Protection Tests on Small Groups of Individuals Vaccinated, Respectively, With an Intracutaneous Course of T.A.B. Vaccine Consisting of 0.05, 0.1 and 0.1 ml., and with a Subcutaneous Course of 0.5, 1.0, and 1.0 ml.

Minimal Lethal Doses of Test Organism (*E. typhosa*)	*Number and Per cent of Persons Whose Sera, in 0.1 ml. Amounts, Protected Groups of 4 Mice Against the Doses of Test Organisms Listed in Column on left*			
	Intracutaneous Group		*Subcutaneous Group*	
	No. of Persons	*Per cent*	*No. of Persons*	*Per cent*
100,000	..	....	2	28.5
10,000	..	....	3	43.0
1,000	2	25.0	..	....
100	4	50.0	2	28.5
10	2	25.0	..	....
Totals	8	100.0	7	100.0

If these results were any indication of what would happen in large groups of individuals, it was plain that intracutaneous vaccination is definitely inferior to the subcutaneous method—*in the dosages used*. Morgan and his

associates [3] commented on this observation as follows: "The intradermal administration of bacterial vaccines was found less effective than the subcutaneous route." As will be shown later, dosage is an important factor; and to have added "in the dosages used" would have been a desirable qualification.

Meanwhile, also, we were aware of an increasing tendency toward intracutaneous administration of typhoid vaccine by many agencies, for the establishment of initial immunity. The most interesting report of this activity appeared under the heading of "Vaccination: Wholesale," in which Fennel [5] wrote of the widespread practice of intracutaneous vaccination of the civilian population of Hawaii by the local health authorities. This incident in Hawaii has also been revealed in the introduction to a paper by Tilden and Arnold.[15] The popularity of the intradermal method of antityphoid vaccination in Cuba has been commented upon by Curbelo,[17] and more fully expounded in a paper by Argudin.[16]

We were also aware of the many reported studies on the comparative effectiveness of intracutaneous and subcutaneous vaccination; but all of these, with the single exception noted below, were evaluated on the basis of agglutinative titers, whereas we desired an evaluation based upon the production of demonstrable protective substances in the blood serum.

Tuft [6] (1931) advocated as a routine procedure the intracutaneous administration of 4 doses of triple typhoid vaccine (0.05, 0.1, 0.15, and 0.2 ml.) spaced by an interval of from 5 to 7 days. At this time, his conclusions were based on the results of agglutinin titrations; but in 1940, Tuft [7] reported the results of mouse protection tests with pooled sera from 9 individuals who had been vaccinated intracutaneously with 3 doses of typhoid vaccine (0.1, 0.15, and 0.2 ml.) at weekly intervals. The protective titer of this pooled serum was reported to be somewhat higher than that of a pooled sample of serum from 19 subjects who had received 0.5, 1.0, and 1.0 ml. of the vaccine subcutaneously. Tuft then recommended the 3 intracutaneous injections cited above as routine procedure.

Valentine, Park, Falk, and McGuire [8] (1935) reported on the agglutinin response produced by intracutaneous and subcutaneous vaccination, concluding that the intracutaneous doses employed were as effective as five times the amount of vaccine subcutaneously administered, but that one-tenth of the subcutaneous dose intracutaneously administered "produced slightly less response."

Perry [9] (1937) employed a course of T.A.B. vaccine consisting of 3 intracutaneous doses (0.05, 0.1, and 0.1 ml.) administered at weekly intervals; and, for the control group, subcutaneous doses of 0.5, 0.8, and 1.0 ml. He stated that these procedures were equally effective in the production of "H" and "O" agglutinins.

Wyandt, Bayliss, Tollman, and Gunderson [10] (1938) used intracutaneous doses of 0.05, 0.1, and 0.1 ml., and subcutaneous doses of 0.5, 1.0, and 1.0 ml. of T.A.B. vaccine. In both courses of vaccination, the doses were spaced by 1 week. These workers reported that the subcutaneous course produced approximately twice the antibody [agglutinin] response of that produced by the intracutaneous doses.

Van Gelder and Fisher [11] (1941) reported on a large group of children in whom they found an equal degree of response to "H" antigens by the intracutaneous and subcutaneous methods, but the latter produced a higher average "O" titer. Despite the inferior production of "O" agglutinins produced by the intracutaneous doses of 0.05, 0.1, and 0.15 ml., these workers recom-

mended this course for subjects weighing 120 lb. or more, in preference to the usual dosage administered subcutaneously.

Naumer and Nerb [12] (1943) vaccinated respective groups of children intracutaneously (0.1, 0.2, 0.3, and 0.4 ml.) and subcutaneously (0.5, 0.75, and 1.0 ml.). They reported that "The intracutaneous injections were followed by a slightly higher ["H" and "O"] titer formation although the difference is hardly significant."

Leibovitz [13] (1943) reported that higher "H" and "O" titers were produced in girls vaccinated intracutaneously with 0.05, 0.1, and 0.1 ml. of T.A.B. vaccine, than in boys vaccinated subcutaneously with ten times this dosage; and that "O" agglutinins disappeared more rapidly from the blood serum of the subcutaneously vaccinated boys during a period of 13 months, implying that intracutaneous vaccination favored persistence of "O" agglutinins.

Kamp [14] (1943) vaccinated a total of 946 children with an intradermal course of 0.1, 0.15, and 0.2 ml. of T.A.B. vaccine, and concluded, on the basis of previous work and on his own findings of economy and marked absence of general reactions, and a minimum of discomfort associated with the local reactions, that "Sufficient work has been done to warrant using this method as a means of initial typhoid fever immunization."

Thus, it will be seen that the production of agglutinins has been quite generally accepted as an index to the production of protective substances, or as a criterion for appraising the relative effectiveness of intracutaneous and subcutaneous vaccination. This paper reports a direct determination of protective antibodies, as demonstrated by mouse protection tests, produced by each of the two methods of immunization under discussion; and a comparative evaluation of these methods on the basis of demonstrable protective substances in the blood serum. Typhoid "H" and "O" agglutinative titers have also been determined as a matter of interest only.

THE PRESENT INVESTIGATION

Subjects—These were medical students, first and second year, recruited from six major universities. Only those students whose histories were negative for typhoid fever and for antityphoid vaccination were included in this study.

The Vaccine—Triple typhoid (T.A.B.) vaccine [18] prepared in the Division of Biologic Products of the Army Medical School was used exclusively.

Dosages of Vaccine—A review of the literature, and of unpublished work brought to the author's attention by advocates of the intradermal method, indicate that three courses of vaccine have chiefly been used and recommended for intracutaneous vaccination: (a) 0.05, 0.1, and 0.1 ml., (b) 0.1, 0.15, and 0.2 ml., and (c) 0.1, 0.2, and 0.2 ml. It appears that 0.2 ml. represents the maximum amount of material that can be injected intracutaneously without producing undue physical destruction of tissue, or leakage into subcutaneous tissues. To those individuals in the control groups, the standard course (0.5, 1.0, and 1.0 ml.) of vaccine was administered subcutaneously. The interval between doses was, in all instances, 7 days.

Collection of Serum—All subjects were bled from 1 to 7 days prior to the administration of the first dose of vaccine, and again 14 days following the last dose. The serum was separated aseptically, and stored in the refrigerator without the addition of a preservative.

Instructions to Group Leaders at Medical Schools—In order to standardize the procedures as nearly as practicable at the six medical schools participating in this investigation, the following instructions (altered slightly)

TABLE 2

Comparison of Typhoid Protective Titers Produced by 0.05, 0.1, and 0.1 ml. of T.A.B. Vaccine Intracutaneously Administered, With Those Titers Produced in the Control Subjects by the Standard Subcutaneous Course of 0.5, 1.0, and 1.0 ml.

Number and Per cent of Persons Whose Sera, Before and After Vaccination, Protected Mice Against the Doses of Test Organism Listed in Column on Left

Minimal Lethal Doses of Test Organism	Before Vaccination				After Vaccination			
	Intracutaneous Group		Subcutaneous Group		Intracutaneous Group		Subcutaneous Group	
	No. of Persons	Per cent	No. of Persons	Per cent	No. of Persons	Per cent	No. of Persons	Per cent
10,000	..	..	..	..	3	15	9	45
1,000	..	..	..	..	11	55	10	50
100	..	..	1	5	6	30	..	..
10	2	10	..	..	..	..	1	5
1	6	30	5	25	..	..	..	..
Failed against 1	12	60	14	70	..	..	..	..
Totals	20	100	20	100	20	100	20	100

TABLE 3

Comparison of Typhoid Protective Titers Produced by 0.1, 0.15 (or 0.2), and 0.2 ml. of T.A.B. Vaccine Intracutaneously Administered, With Those Titers Produced in the Control Subjects by the Standard Subcutaneous Course of 0.5, 1.0 and 1.0 ml.

Number and Per cent of Persons Whose Sera, Before and After Vaccination, Protected Mice Against the Doses of Test Organism Listed in Column on Left

Minimal Lethal Doses of Test Organism	Before Vaccination *				After Vaccination			
	Intracutaneous Group		Subcutaneous Group		Intracutaneous Group		Subcutaneous Group	
	No. of Persons	Per cent	No. of Persons	Per cent	No. of Persons	Per cent	No. of Persons	Per cent
100,000	..	....	..	....	..	....	6	6.0
10,000	..	....	..	....	21	21.0	33	33.3
1,000	..	....	..	....	35	35.0	31	31.3
100	1	1.0	..	....	29	29.0	21	21.2
10	5	5.3	5	5.3	11	11.0	3	3.0
1	17	17.8	16	16.7	4	4.0	5	5.0
Failed against 1	72	75.8	74	77.8	..	....	..	....
Totals	95	99.9	95	99.8	100	100.0	99	99.8

* 9 specimens lost in transit

TABLE 4

SUMMARY: *Comparison of Typhoid Protective Titers Produced in All Persons Intracutaneously Vaccinated in This Study With Those Titers Produced in Control Subjects Receiving the Standard Subcutaneous Course of Vaccine*

Number and Per cent of Persons Whose Sera, Before and After Vaccination, Protected Mice Against the Doses of Test Organism Listed in Column on Left

Minimal Lethal Doses of Test Organism	Before Vaccination *				After Vaccination			
	Intracutaneous Group		Subcutaneous Group		Intracutaneous Group		Subcutaneous Group	
	No. of Persons	Per cent	No. of Persons	Per cent	No. of Persons	Per cent	No. of Persons	Per cent
100,000	..	....	..	....	..	....	6	5.0
10,000	..	....	..	....	24	20.0	42	35.3
1,000	..	....	..	....	46	38.3	41	34.4
100	1	0.9	1	0.9	35	29.2	21	17.7
10	7	6.0	5	4.3	11	9.1	4	3.3
1	23	20.0	21	18.2	4	3.3	5	4.2
Failed against 1	84	73.0	88	76.5	..	....	..	....
Totals	115	99.9	115	99.9	120	99.9	119	99.9

* 9 specimens lost in transit

were circularized among the group leaders:

"This comparison of the immunogenic effectiveness of intracutaneous and subcutaneous administration of triple typhoid vaccine will be based on the results of serum protection tests. However, both 'H' and 'O' agglutinative titers of the sera will also be determined. It is requested that the following outlined procedures be adhered to as closely as practicable in order that this and similarly treated groups may be considered jointly as one large group.

"1. Only primary cases should be chosen. Histories of previous antityphoid immunization and of typhoid and paratyphoid fevers should be negative. . . .

"2. Groups (classes) should be divided, as nearly as possible, into two subgroups of equal numbers—one to receive vaccine intracutaneously, the other to be vaccinated subcutaneously.

"3. Triple typhoid vaccine, prepared at the Army Medical School, will be used. This is the stock 'Army T.A.B.' product, and will be supplied in adequate amounts.

"4. Recommended Dosage: Intracutaneously, one of the following: (a) 0.05 cc., 0.1 cc., and 0.1 cc., (b) 0.1 cc., 0.15 cc., and 0.2 cc., (c) 0.1 cc., 0.2 cc., and 0.2 cc. Subcutaneously, 0.5 cc., 1.0 cc., and 1.0 cc. In each instance, the interval between doses should be one week.

"4. a. Site of Injection: (Separate communication. The area described as the inser-

TABLE 5

Comparison of Paratyphoid A Protective Titers Produced by 0.05, 0.1, and 0.1 ml. (in 20 Persons) or More (in 45 persons) of T.A.B. Vaccine Intracutaneously Administered With Those Titers Produced in the Control Subjects by the Standard Subcutaneous Course of Vaccine

Number and Per cent of Persons Whose Sera, Before and After Vaccination, Protected Mice Against the Doses of Test Organism Listed in Column on Left

Minimal Lethal Doses of Test Organism	Before Vaccination				After Vaccination			
	Intracutaneous Group		Subcutaneous Group		Intracutaneous Group		Subcutaneous Group	
	No. of Persons	Per cent	No. of Persons	Per cent	No. of Persons	Per cent	No. of Persons	Per cent
1,000	..	....	..	....	..	....	1	1.5
100	..	....	..	....	4	6.1	18	27.7
10	2	3.0	1	1.5	32	49.2	30	46.2
1	6	9.2	10	15.4	22	33.8	14	21.5
Failed against 1	57	87.7	54	83.0	7	10.8	2	3.0
Totals	65	99.9	65	99.9	65	99.9	65	99.9

TABLE 6

Comparison of Paratyphoid B Protective Titers Produced by 0.05, 0.1, and 0.1 ml. (in 20 Persons) or More (in 50 Persons) of T.A.B. Vaccine Intracutaneously Administered, With Those Titers Produced in the Control Subjects by the Standard Subcutaneous Course of Vaccine

Number and Per cent of Persons Whose Sera, Before and After Vaccination, Protected Mice Against the Doses of Test Organism Listed in Column on Left

Minimal Lethal Doses of Test Organism	Before Vaccination				After Vaccination			
	Intracutaneous Group		Subcutaneous Group		Intracutaneous Group		Subcutaneous Group	
	No. of Persons	Per cent	No. of Persons	Per cent	No. of Persons	Per cent	No. of Persons	Per cent
100,000	..	....	..	....	14	20.0	31	44.3
10,000	..	....	..	....	34	48.6	22	31.4
1,000	3	4.3	1	1.4	20	28.5	15	21.4
100	15	21.4	11	15.7	2	2.8	2	2.8
10	14	20.0	16	22.9	..	....	..	....
1	12	17.1	13	18.5	..	....	..	....
Failed against 1	26	37.1	29	41.4	..	....	..	....
Totals	70	99.9	70	99.9	70	99.9	70	99.9

TABLE 7

Comparison of Typhoid "H" and "O" Agglutinin Titers Produced in 20 Subjects by a Course of 0.05, 0.1, and 0.1 ml. of T.A.B. Vaccine Intracutaneously Administered, With Those Titers Produced in 20 Control Subjects by the Standard Subcutaneous Course of Vaccine

Method of Vaccination	Type of Agglutinin	Numbers of Individuals Whose Sera, After Vaccination, Agglutinated the Respective Antigens Completely in the Dilutions Set Forth Below									Average
		1:20	1:40	1:80	1:160	1:320	1:640	1:1,280	1:2,560	1:5,120	
Intracut.	"H"	..	1	..	4	3	4	2	6	..	1:1,106
Subcut.	"H"	..	..	1	..	3	4	5	4	3	1:1,780
Intracut.	"O"	2	3	9	5	1	..	..	..	..	1:100
Subcut.	"O"	..	2	7	5	3	2	1	..	..	1:248

TABLE 8

Comparison of Typhoid "H" and "O" Agglutinin Titers Produced in 95 Subjects by a Course of 0.1, 0.15 (or 0.2), and 0.2 ml. of T.A.B. Vaccine Intracutaneously Administered, With Those Titers Produced in 95 Control Subjects by the Standard Subcutaneous Course of Vaccine

Method of Vaccination	Type of Agglutinin	Numbers of Individuals Whose Sera, After Vaccination, Agglutinated the Respective Antigens Completely in the Dilutions Set Forth Below									Average
		1:20	1:40	1:80	1:160	1:320	1:640	1:1,280	1:2,560	1:5,120	
Intracut.	"H"	..	..	6	11	18	22	22	12	4	1:1,068
Subcut.	"H"	..	..	3	13	11	25	21	16	6	1:1,267
Intracut.	"O"	13	10	32	32	6	2	..	..	..	1:122
Subcut.	"O"	3	17	26	30	14	5	..	..	..	1:161

TABLE 9

SUMMARY: *Comparison of Typhoid "H" and "O" Agglutinin Titers Produced in All Persons Intracutaneously Vaccinated in This Study, With Those Titers of the Subcutaneously Vaccinated Control Subjects*

Method of Vaccination	Type of Agglutinin	Numbers of Individuals Whose Sera, After Vaccination, Agglutinated the Respective Antigens Completely in the Dilutions Set Forth Below									Average
		1:20	1:40	1:80	1:160	1:320	1:640	1:1,280	1:2,560	1:5,120	
Intracut.	"H"	..	1	6	15	21	26	24	18	4	1:1,074
Subcut.	"H"	..	..	4	13	14	29	26	20	9	1:1,356
Intracut.	"O"	15	13	41	37	7	2	..	..	..	1:118
Subcut.	"O"	3	19	33	35	17	7	1	..	..	1:176

tion of deltoid muscle was chosen by all group leaders for both methods of administration.)

* * *

"6. Specimens of Serum: A 30 cc. specimen of blood should be drawn from each person just prior to the administration of the first dose of vaccine, and again on the 14th day following the last dose. The serum should be aseptically separated and bottled (or tubed), and plainly labeled with the person's name and the date on which the specimen was collected . . ."

PROTECTIVE TITERS

Serum protection tests[4] were performed on all sera to determine the extent of production of typhoid protective substances, but protective titers for *Salmonella paratyphi* and *Salmonella schottmuelleri* were determined on only a limited number of sera. Typhoid protective titers have been recorded in Tables 2 and 3, and summarized in Table 4. Since the disparity between the two intracutaneous courses consisting of the larger doses is not significant (0.05 ml.), the titers of individuals receiving these courses have been combined in Table 3. Para A and B protective titers have been recorded in Tables 5 and 6 respectively.

AGGLUTINATIVE TITERS

Typhoid "H" and "O" agglutinative titers were determined by the familiar test-tube titration method with standard "H" (formalinized H-901)

and "O" (alcohol-treated O–901) antigens. These titers have been recorded in Tables 7, 8, and 9.

DURATION OF PROTECTIVE AND AGGLUTINATIVE ANTIBODIES

Leibovitz [13] reported a more substantial duration of agglutinins in intracutaneously inoculated children than in their subcutaneously vaccinated controls. In view of this finding, it was thought desirable to study this factor of duration in respect to protective substances before concluding our investigation. Sera from the participants of the original vaccination experiment who were still available and eligible * for follow-up tests were obtained through the coöperation of group leaders at three of the participating medical schools. However, a total of only 18 sera representative of each vaccinated group were received. These were titrated for agglutinative and protective antibodies for whatever information they would provide. Results of these titrations have been recorded in Tables 10 and 11.

* Some of the participants had been inducted into the Army or Navy and revaccinated before the expiration of one year.

REACTIONS

Data on reactions were collected by a method somewhat different from any that has hitherto been used. At the time of administering the first dose of vaccine, each student was given a blank form (illustrated below) on which he was requested to record his reactions. Instructions to group leaders who supervised the procedures at their respective schools read as follows:

"Reactions: These should be recorded by the individuals themselves, in their own words and with a minimum of coaching or warning of manifestations to be anticipated. The attached form, copies of which will be supplied, is suggested for the use of each individual."

TABLE 10

Comparison of Typhoid Protective Titers Persisting One Year After Vaccination in 18 Persons Who Received an Intracutaneous Course of 0.05, 0.1, and 0.1 ml. (or More) of T.A.B. Vaccine, and in 18 Persons Who Received the Standard Subcutaneous Course

Minimal Lethal Doses of Test Organism	Number and Per cent of Persons Whose Sera, One Year After Vaccination, Protected Mice Against the Doses of Test Organism Listed in Column on Left			
	Intracutaneous Group		Subcutaneous Group	
	No. of Persons	Per cent	No. of Persons	Per cent
10,000	..	....	3	16.6
1,000	5	27.7	6	33.3
100	3	16.6	3	16.6
10	6	33.3	3	16.6
1	4	22.2	3	16.6
Totals	18	99.8	18	99.7

TABLE 11

Comparison of Typhoid "H" and "O" Agglutinin Titers Persisting One Year After Vaccination in 18 Persons Who Received an Intracutaneous Course of 0.05, 0.1, and 0.1 ml. (or More) of T.A.B. Vaccine, With Those Titers Produced in 18 Persons Vaccinated With a Standard Subcutaneous Course

Method of Vaccination	Type of Agglutinin	Numbers of Individuals Whose Sera, One Year After Vaccination, Agglutinated the Respective Antigens Completely in the Dilutions Set Forth Below							
		1:10	1:20	1:40	1:80	1:160	1:320	1:640	Average
Intracut.	"H"	1	1	5	4	6	1	..	1:102
Subcut.	"H"	..	..	2	7	8	1	..	1:124
Intracut.	"O"	7	2	4	4	1	..	..	1:42
Subcut.	"O"	3	3	3	7	2	..	..	1:61

Data on Reactions Following Vaccination With T.A.B. Vaccine

NAME: _____ GRADE CLASS _____ ORG. SCHOOL _____

HISTORY OF TYPHOID OR PARATYPHOID FEVER: _____

PREVIOUS ANTITYPHOID VACCINATION: Number of Courses: _____

Date of last course: _____

METHOD OF ADMINISTRATION, THIS COURSE: (Check one) Intracutaneous
Subcutaneous

Dose	TIME OF READING	AREA OF HYPEREMIA		LYMPHATIC INVOLVEMENT	SYSTEMIC MANIFESTATIONS
		Size (in sq. cm.)	Degree of Tenderness		
1st	24 hrs.				
	48 hrs.				
2nd	24 hrs.				
	48 hrs.				
3rd	24 hrs.				
	48 hrs.				

This method is admittedly not without its faults, but it does possess certain advantages: Although it stimulates an anticipation of some ensuing reaction, there is an absence of suggestion of specific manifestations; a convenient form is available for recording the reactions at or soon after the time they occur, so that there are no blanks nor vagaries due to lapse of memory; and the records are made in a uniform manner, thus facilitating tabulation of data.

TABLE 12

Summary of Local and Systemic Reactions Following Subcutaneous Injections of the Standard Dosage (0.5, 1.0, and 1.0 ml.) and Intracutaneous Injections of One-tenth to One-fifth of this Dosage (115 Persons in Each Group)

			Local							Systemic							
				Degree of Tenderness				Lymphatic Involvement									
Method of Vaccination	Dose of Vaccine		Average Area of Hyperemia (Cm^2)	None	Slight	Moderate	Severe	None	Cervical	Axillary	None	Headache	Chills	Fever	Lassitude	Muscular Pains	Malaise	Nausea	Urticaria
Intracut.	1st		19	6	69	33	7	70	2	44	94	6	1	2	5	0	7	2	0
Subcut.	1st		51	0	35	51	29	56	3	57	67	22	6	11	17	8	10	1	0
Intracut.	2nd		24	2	58	41	14	67	1	46	92	7	1	4	6	0	7	3	2
Subcut.	2nd		65	0	30	46	39	58	1	56	67	15	4	12	16	12	15	1	1
Intracut.	3rd		23	12	72	26	5	90	0	25	101	7	0	1	4	1	4	1	0
Subcut.	3rd		45	5	76	24	10	80	0	35	99	7	2	3	5	4	4	0	0
Total intracut.				20	199	100	26	227	3	115	287	20	2	7	15	1	18	6	2
Total subcut.				5	141	121	78	194	4	148	233	44	12	26	38	24	29	2	1

It is believed that these students were sufficiently advanced and trained to observe intelligently and record accurately the simple manifestations likely to be evoked by T.A.B. vaccination.

A summary of the individual reports received from the students has been entered in Table 12. There was one minor alteration: remarks such as "drowsiness," "felt tired," "muscular weakness," "not hungry," "faint feeling," "sluggishness," and others having similar implications, were grouped under the general heading of *lassitude*. When entries under the 24 hour and 48 hour periods differed, that entry indicating the more severe reaction was chosen for inclusion in the tabulated data.

DISCUSSION

Protective Titers—It appears that the intracutaneous course of 0.05, 0.1, and 0.1 ml. of T.A.B. vaccine is not as effective in the production of typhoid, paratyphoid A, and paratyphoid B protective substances as is the course consisting of 0.1, 0.2, and 0.2 ml.; also, that the latter is, in general, not as effective in respect to protective titers as is the standard subcutaneous course of 0.5, 1.0, and 1.0 ml. of vaccine. It is true that the differences in the latter comparison do not loom up as widely separated values, but it is believed that they are significant in view of the constant tendency in each of the six groups to favor the standard subcutaneous course.

Agglutinative Titers—As stated earlier in this paper, typhoid agglutinative titers were included only as a matter of interest. The "H" and "O" titers produced by the standard subcutaneous vaccination were, in general, higher than were those produced by any of the intracutaneous courses.

Duration of Protective and Agglutinative Antibodies—Unfortunately, we are dealing with too insignificant numbers of subjects to arrive at any definite conclusions. Leibovitz [13] vaccinated 41 girls (average age 10) intracutaneously with 0.05, 0.1, and 0.1 ml. of Lederle's T.A.B. vaccine, and 44 boys (average age 10) with a subcutaneous course of 0.5, 1.0, and 1.0 ml. of the same vaccine. He reported that the greater percentage of subjects with the higher "O" agglutinative titers were in the group vaccinated intradermally, on determinations made 13 months after vaccination, using the rapid slide agglutination technic of Welch and Stuart.[19]

We, on the other hand, vaccinated 18 young adult males intracutaneously with a course of 0.05, 0.1, and 0.1 ml. (or more) of Army T.A.B. vaccine, and a comparable group of persons subcutaneously with 0.5, 1.0, and 1.0 ml. of the same vaccine. At the end of 1 year, we found that both agglutinative and protective titers were higher, on an average, in the subcutaneously vaccinated individuals. Our agglutinative titers were determined by means of the commonly used tube titration method.

In summation, there was no suggestion in our results that these antibodies persisted longer in the blood serum of intracutaneously vaccinated persons than they did in persons vaccinated subcutaneously. Considering the fact that the titers for both types of antibodies were initially (14 days) higher in those individuals comprising the subcutaneous group, there was neither any evidence that persistence of antibodies is a special attribute of the subcutaneous administration of T.A.B. vaccine.

Reactions—A casual inspection of Table 12 reveals that, in general, both local and systemic reactions were appreciably less frequent and severe following intracutaneous injections of vaccine. This is in agreement with all reported studies cited elsewhere in this paper.

However, it was interesting to observe disparities between reactions among some of these vaccinated groups. At one school, for example, lymphadenitis

was much more frequent and pronounced among intracutaneously vaccinated individuals than among their subcutaneously vaccinated controls. At a different school, another irregularity noted was the almost indistinguishable rate of frequency and degree of severity of systemic reactions among intracutaneously and subcutaneously vaccinated persons. In fact, the third dose was not given to two persons in the intracutaneous group because of the severity of reactions, described as (1) "Very ill, chills, fever 104°," and (2) "Severe rash (Hives) with confluent wheals." At this same school, the third dose was also omitted in the case of one person in the subcutaneous group because of "Hives over entire body, swollen face, temp. 102°." In each instance, these reactions were reported to have occurred within 24 hours following the administration of the second dose of vaccine. The group leader at this school, in commenting upon reactions, remarked that he was "rather surprised at the slight difference between the groups." In general, however, there is little doubt of the relatively fewer and milder reactions evoked by the intracutaneous injections of the small doses of T.A.B. vaccine employed in this investigation.

Although we have not had an opportunity to observe late granulomatous reactions following intracutaneous injection of vaccine in individuals comprising this study, we have noted chronic granulomas in other intracutaneously inoculated persons. Tilden and Arnold[15] have reported their observations of this late reaction in the Hawaiian population reported by Fennel[5] to have been vaccinated chiefly by the intradermal method.

In the full awareness of the occurrence of occasional undesirable symptoms attributable to the subcutaneous dosage of T.A.B. vaccine, it is thought that too much weight has probably been given to reactions as a criterion for appraising methods of vaccination. While it is unquestionably desirable that reactions be reduced in frequency and severity (if this reduction can be accomplished without a reduction of immunological response), we do not agree with Van Gelder and Fisher[11] who stated: "It is this difference in reactions that renders the intradermal method superior to the subcutaneous method for typhoid immunization." After all, these are *immunizing* procedures; and, since neither is dangerous to life or injurious to health, superiority of one method over another must be based upon the degree of *immunological response*, not on the degree of freedom from annoyance.

Other Observations—The value of a combination of six group studies conducted according to a uniform set of stipulations, rather than the study of a single group, was made apparent in many ways. As an example, assuming that only the one school cited above (whose intracutaneously and subcutaneously vaccinated groups manifested almost the same rates and degrees of systemic reactions) had been observed, the relative innocuousness of intradermal injection of T.A.B. vaccine, quite evident in the other five schools, would not have been confirmed. In another instance, the protective titers produced by the two methods of administering vaccine, although slightly in favor of the subcutaneous method, were not significantly so as they were in the other five comparative groups. In still another instance, typhoid "H" and "O" titers were so nearly equal that, from this single comparison one would be forced to conclude that the two routes and the dosages employed were equally productive of agglutinin titers. In short, if it were not for the five other comparative groups acting as a counterbalance on some one observation made of a single group, it is easy to discern at least three conclusions that

would be divergent from those that have been set forth below.

CONCLUSIONS

1. The standard subcutaneous course of T.A.B. vaccine consisting of 0.5, 1.0, and 1.0 ml., is more effective in the production of typhoid, paratyphoid A, and paratyphoid B protective substances than is one-tenth to one-fifth of this dosage intracutaneously administered.

2. The standard subcutaneous course of T.A.B. vaccine is more effective in the production of typhoid "H" and "O" agglutinins than is one-tenth to one-fifth of this dosage intracutaneously administered.

3. In small experimental groups, there was found no evidence that persistence of agglutinative or protective antibodies, at the end of 1 year, is a special attribute of either intracutaneous or subcutaneous administration of T.A.B. vaccine.

4. Although local and systemic reactions are more frequent and pronounced following administration of the standard subcutaneous doses of T.A.B. vaccine than following the intracutaneous injection of one-tenth or one-fifth of these doses, it is not felt that we can risk any lowering of protection for the questionable reward of milder reactions. Under the best of conditions of immunological response to artificial immunization, we cannot expect our standard method of vaccination to be adequate at all times in the field to the challenge of infecting organisms. Adoption of the intracutaneous administration of reduced doses of T.A.B. vaccine would seem to increase this inadequacy.

5. It is not to be inferred from these conclusions that the intracutaneous administration of T.A.B. vaccine for the establishment of initial immunity is indiscriminately condemned. On the contrary, intracutaneous vaccination has a definite usefulness in its application to elderly persons and to allergic individuals, in whom severe or serious disturbances may be avoided by the administration of reduced doses, intradermally placed.

6. It is neither to be inferred that we consider the standard subcutaneous course of T.A.B. vaccination as the ultimate in antityphoid vaccination procedures. Intervals between doses, and the doses themselves, would bear investigation. Preliminary studies on these questions are now in progress.

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Institute on Rural Youth Migration

The Annual Meeting of the Institute on War and Postwar Problems of Rural Youth Migration was recently held in Washington, D. C., including a section on Rural Health Conditions under the Chairmanship of C. L. Williams, Jr., M.D., of the States Relations Division, U. S. Public Health Service. Other members of the section interested in public health included Anna Heisler, R.N., U. S. Public Health Service, Fred Mott, M.D., U. S. Public Health Service and Chief Medical Officer of the Farm Security Administration, and Arthur J. Lesser, M.D., Regional Medical Consultant, U. S. Children's Bureau.

It is reported that there was agreement at the Institute that health and medical services are important contributing factors to community morale. It was realized that such services are distributed among the population with more regard to the ability to pay than to actual need. It was concluded that the availability of health and medical services in rural areas should be regarded as a right rather than a luxury dependent upon individual or community purchasing power. Specific recommendations included:

(a) The further extension of existing public health services, with special emphasis on the local level, was urged. The system of public health districts developed by the Committee on Administrative Practice of the American Public Health Association and based upon population and area was approved in principle and its acceptance urged.

(b) The further extension of existing medical, dental, and nursing services including hospitals and clinic services was favored. Medical and Hospital facilities should be made available to all people regardless of their place of residence or their financial status. The war has shown a need for more physicians, especially in rural areas. Accordingly, provisions should be made for additional training facilities to meet the war and the anticipated postwar demand for medical care.

Some Factors Affecting the Early Diagnosis of Pulmonary Tuberculosis

Study of 230 Newly Reported Cases

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THE purpose of this investigation was to study some of the factors limiting the efficacy of case finding among symptomatic groups, to note differences in the potential value of contact examinations depending on the type of community, and to emphasize the important rôle of mass surveys of selected population groups in future tuberculosis control programs.

METHOD OF COLLECTING DATA

The exact time at which the patient first became aware of a departure from normal usually cannot be determined from hospital or clinic records. Even less satisfactory is the information from such records regarding history of illness among current or former contacts of the patient, not only with regard to tuberculosis, but concerning any suspicious symptoms referable to the chest. Furthermore, no detailed residence history is usually available, and it was desired to observe the variation of several factors according to a history in the past of residence in an urban versus a rural community.

Therefore, the primary source of the data was personal interview of patients. This was supplemented by reference to hospital, clinic, and public health records. Wherever there was a question of a contact having suspicious symptoms and there were relevant hospital or other medical records, these too were examined. In each case the family physician was consulted and the individual and family history discussed with him. As the patient interviews were all conducted by one individual, differences due to differing interpretation, approach, etc., were minimized.

The area selected for the study included three counties in upstate New York. Two were predominantly rural, the third included a city of about 200,000 population. In order that these personal interviews would be most productive, and so that the results would mirror as closely as possible the current picture of tuberculosis, the group selected included those cases reported for the first time during the year 1941 and still living in the same area. It will be noted that this was at the beginning of the war before mass radiography became relatively common.

Cases for which there was evidence of a previous report in the district roster were excluded. As the interviews were completed during the 8 months between October 1, 1941, and June 1, 1942, the loss by death of cases reported during 1941 was not high—56 of 353 cases (16 per cent).

It was found that these deceased cases could not be included because the de-

sired data to be used comparatively were not available from existing records. Of 251 patients still living in the area and capable of being interviewed, 230 (91.7 per cent) were located and are included in the investigation.

Each of the three counties has easily accessible chest clinic facilities, and in none was there a shortage of physicians at the time of the study.

The following information was obtained on each patient:

Identifying data—name, address, date of birth, marital status, sex, color, parents' birthplace, occupation, and attending physician.

Apparent onset—date and nature of first symptoms referable to the chest; date and reason for first medical consultation subsequent to these symptoms; first chest x-ray; date, by whom taken, by whom referred, and result; date and source of x-ray on which diagnosis was first made; place, date, and result of sputum examinations; reporting: date, by whom, stage and activity of disease at that time.

Treatment—dates of sanatorium residence or home "curing."

Residence—places of residence from birth to age of 15 years; from 15 to 30 years; and subsequently—with time spent in each place.

Contact history—included all persons with one month or more household association with the patient since the latter's birth; also any known extra-household contact who had been diagnosed tuberculous. Information secured on the former included: name, relation to the patient, address, age, presence of suspicious chest symptoms (at any time), x-ray examination if performed, current status (non-tuberculous, definite tuberculosis, or suspect), date and cause of death if deceased, and dates of contact with the patient.

The data were transferred to punch cards and mechanically sorted.

DIAGNOSIS

In 222 of the 230 cases the diagnosis was established by means of x-ray films; in 4 the original diagnosis was made on the basis of fluoroscopy, and in 3 on sputum examination. In one instance the disease was discovered at the time of an operation.

Over half of the cases (124) were reported by a chest clinic, 48 by a tuberculosis hospital, 48 by a private physician, and 10 by general or other hospitals.

Among the 230 patients there were 30 who had been diagnosed more than a year earlier but not reported as cases until 1941; and another 60 had been aware of symptoms referable to the chest for a period of more than a year before reporting. Thus, nearly 40 per cent of this group of newly reported patients had definite evidence of disease for a considerable period prior to reporting.

VARIOUS FACTORS RELATED TO STAGE OF DISEASE AT REPORTING

1. *Age and sex*—There was a greater proportion of minimal cases reported among females than among males. Table 1 shows that there were 40.7 per cent minimal cases among the former and only 30.3 per cent among the latter. This difference is also reflected in the

TABLE 1

Stage of Disease at Reporting According to Sex of Patients

	All Stages		*Tb. Pleurisy*		*Minimal*		*Mod. Adv.*		*Far Adv.*		*Stage at 1st Report Not Determined*	
Sex	*No.*	*Per cent*	*No.*	*Per cent*	*No.*	*Per cent*	*No.*	*Per cent*	*No.*	*Per cent*	*No.*	*Per cent*
Total	230	100	5	2.2	81	35.2	64	27.8	64	27.8	16	7.0
Male	122	100	2	1.6	37	30.3	34	27.9	40	32.8	9	7.4
Female	108	100	3	2.8	44	40.7	30	27.8	24	22.2	7	6.5

proportion of far advanced cases according to sex.

A possible explanation is offered in the observation that more of the symptomatic females consulted a physician within a month of their onset than did symptomatic males. This increased delay on the part of the men in securing medical attention was not limited to any one age group. In the ages 0–29 and over 30 years, the males had 45.2 per cent and 51.7 per cent respectively soliciting medical aid within a month following first symptoms; whereas the females had 65.8 per cent and 64.3 per cent respectively. It seems quite likely that this is a manifestation of the frequently observed tendency among male patients to belittle the importance of all but the most serious symptoms.

2. *Parental nativity*—Foreign population groups are generally considered to present more of a problem in tuberculosis control than other groups, particularly in urban areas. It is not always clear why this should be except where living conditions offer an explanation. Table 2 shows that in this study (where practically all of the patients were native born) the factor of parental nativity was not associated with any significant difference in the stage of disease at reporting.

Because of frequent unwillingness to be hospitalized these first generation natives are often thought to be uncoöperative. However, so far as the original discovery of the disease is concerned they were not found to vary notably from the rest of the group: 54.8 per cent of the patients of native parentage sought medical advice within a month of their onsets and 52.2 per cent of patients of foreign parentage.

3. *Residence history*—Because of the long intervals frequently elapsing after tuberculous infection before overt signs of disease appear, not only the patient's whereabouts at the time of diagnosis but also his whole residence history is of interest. Because of the more frequent association between individuals in an urban society, the spread of any respiratory disease there might be expected to assume a different pattern than that in a rural area.

Of the 230 patients studied, 156 had lived for one year or more in a city of 100,000 population or greater; and 57 of the remaining 74 had lived all of their lives in places of 50,000 or less. There was no significant difference in the subjective manifestation of illness in those with and without extensive large city experience: Of the 156 patients residing in large cities 85.9 per cent were symptomatic, and of the 74 residing in rural areas 83.8 per cent had symptoms.

But there was observed a very definite difference in regard to the stage of disease at reporting. In the more urban-

TABLE 2

Stage of Disease at Reporting According to Parental Nativity

	All Stages		*Tb. Pleurisy*		*Minimal*		*Mod. Adv.*		*Far Adv.*		*Stage at 1st Report Not Determined*	
Parental Nativity	*No.*	*Per cent*	*No.*	*Per cent*	*No.*	*Per cent*	*No.*	*Per cent*	*No.*	*Per cent*	*No.*	*Per cent*
Total	230	100	5	2.2	81	35.2	64	27.8	64	27.8	16	7.0
Both native born	115	100	4	3.5	42	36.5	32	27.8	37	32.2	0	...
Both foreign born	84	100	1	1.2	33	39.3	27	32.1	23	27.4	0	...
Mixed parentage	14	100	0	...	5	...	5	...	4	...	0	...
Information incomplete	17	100	0	...	1	...	0	...	0	...	16	...

ized group there were only 30.8 per cent of minimal cases compared to 47.3 per cent in the more rural group. This seemed surprising in view of the fact that diagnostic facilities were, if anything, more easily available in the urban areas, and lay tuberculosis education probably had been more intensive there. Those patients who had been resident for some time in a rural area before being diagnosed showed a tendency to have more advanced lesions if they had a history of past urban experience.

This difference cannot be explained on the basis of age or sex differences. However, there is a residence-linked characteristic (known prior exposure) which may present an explanation, and which will be considered in the succeeding paragraphs.

4. *History of recognized tuberculosis contact*—Among the patients 139 (60.5 per cent) gave a history of known contact with a previously diagnosed case of tuberculosis. Table 3 shows the marked relation between antecedent household contact and the early discovery of the disease. This is due no doubt in part to the better understanding of the disease in those persons who have had such direct contact with it. Probably, too, it is largely due to the frequence of contact examination in that group before symptoms appear. This supposition is strengthened by the fact that in a small group of persons examined primarily because of contact alone, 15 out of 19 (79 per cent) were minimal on discovery. In a larger group (34) who were asymptomatic—regardless of the reason for the examination leading to their diagnosis—28 (82.3 per cent) were minimal.

As might be expected the history of recognized household contact was associated with slightly larger family groups—the 88 patients with such a history naming 685 current or past household associates for an average of 7.8; while 142 patients without such a history named 1,025 for an average of 7.2. Likewise multiple antecedent household contacts were associated with larger families; the median family size where there was no history of contact was six; with 1 recognized contact it was 7; with 2 it was 9; and with 3 it was 11.

In view of the earlier diagnoses among contact groups it is easier to understand the findings noted above regarding the higher proportion of minimal cases in persons of rural residence. For, as is seen in Table 4, 55.4 per cent of the more rural dwellers gave a history of previous household contact with a diagnosed case; and only 30.1 per cent of the urbanized patients gave a history of recognized household contact.

This would seem to be the natural manifestation of the greater hazard of tuberculous infection from unrecognized sources in areas of greater concentration of population. In the less concentrated areas actual physical association between

TABLE 3

Stage of Disease at Reporting According to History of Recognized Antecedent Contact

	All Stages		*Tb. Pleurisy*		*Minimal*		*Mod. Adv.*		*Far Adv.*		*Stage at 1st Report Not Determined*	
History of Contact	*No.*	*Per cent*	*No.*	*Per cent*	*No.*	*Per cent*	*No.*	*Per cent*	*No.*	*Per cent*	*No.*	*Per cent*
Total	230	100	5	2.2	81	35.2	64	27.8	64	27.8	16	7.0
Household	88	100	1	1.2	43	51.8	22	26.5	16	19.3	1	1.2
Extra household	51	100	1	2.1	14	29.2	14	29.2	19	39.6	1	...
No recoznized contact	91	100	3	3.6	29	28.6	28	33.3	29	34.5	0	...

TABLE 4

History of Recognized Tuberculosis Contact According to Patient's Residence

History of Contact	Total	Residence for One Year or More in a City of 100,000 or Greater		Residence Solely in Smaller Places	
		No.	Per cent	No.	Per cent
Total	230	156	100	74	100
Household	88	47	30.1	41	55.4
Extra household	51	36	23.1	15	20.3
No recognized contact	91	73	46.8	18	24.3

persons is more likely to be focalized in the home, with proportionately less intimate contact between persons outside of their own family circles.

This is of considerable importance from an administrative point of view for it delineates to some extent the differing part that contact investigations should play in the over-all control program in rural and urban areas. Obviously the 70 per cent of urban patients discovered with no known antecedent household contact would not have benefited by a more extensive and complete examination of the household contacts of known cases. To discover them earlier it would have been necessary to have done one of two things: Either secure more prompt action by patient and physician after symptoms developed; or discover them before the appearance of symptoms by means of mass x-raying other than that of the household contacts of known cases. The first possibility will be considered next.

5. *Delay by the patient*—At one time it was felt that intensive lay education regarding the "symptoms of early tuberculosis" might be the solution to early diagnosis. Undoubtedly the longer a patient delays after symptoms develop before seeking medical attention, the more extensive his lesion will be on diagnosis. Table 5 illustrates this point, 47.8 per cent of the patients being far advanced who delayed more than a month in seeking medical advice, whereas only 28.4 per cent were far advanced who had gone to a doctor within a month of the onset of symptoms.

But other important considerations

TABLE 5

Stage of Disease at Reporting According to Manner of Onset and Delay in Seeking Medical Attention *

Interval from Onset to Medical Consultation; and Stage of Disease at Reporting	Total		Initial Symptoms: Chronic Cough or Constitutional Only		Hemoptosis Febrile Illness or Pleurisy		Other Symptoms Related to Chest	
	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent
Less than 1 month:	88	100.0	31	100.0	54	100.0	3	...
Pleurisy	5	5.7	1	3.2	4	7.4	0	...
Minimal	25	28.4	7	22.6	18	33.3	0	...
Mod. advanced	33	37.5	15	48.4	18	33.3	0	...
Far advanced	25	28.4	8	25.8	14	26.0	3	...
More than 1 month:	69	100.0	52	100.0	15	100.0	2	...
Minimal	15	21.8	10	19.2	4	26.6	1	...
Mod. advanced	20	29.0	14	26.9	6	40.0	0	...
Far advanced	33	47.8	27	52.0	5	33.4	1	...
Not reported	1	1.4	1	1.9	0	....	0	...

* Excluding 40 patients with no medical consultation and 33 patients diagnosed prior to 1941

are involved. It is apparent that the nature of the first symptoms are very important. In the 83 patients with an insidious onset, even those who sought medical care promptly (37.4 per cent saw a doctor within 1 month) benefited little from their good "reaction time" as but 22.6 per cent were minimal when reported. Even with the more alarming types of onset, early medical consultation (78.2 per cent saw a doctor within 1 month) resulted in but one-third of the patients being diagnosed in the minimal stage.

This does not present a very encouraging picture of the possibilities of early diagnosis among symptomatic patients. In the nature of the disease we must expect a considerable proportion of cases to continue to present a slight cough, weakness, loss of weight, or other equally nonspecific symptoms as the initial manifestation. Even in the presence of adequate lay education as to the occurrence of such symptoms in tuberculosis, it remains more probable that they will be interpreted at first on the more common basis of a "cold," "sinus trouble," "over-work," etc.

Figure 1 illustrates the time lag in securing medical attention as related to the reporting of the cases after such consultation. It is seen that medical consultation was reasonably prompt, with over 70 per cent of the patients having seen a physician within 2 months after symptoms appeared.

Age alone had little to do with this lag, 56.5 per cent of the symptomatic patients under 30 having seen their doctor within a month and 55.7 per cent of those 30 years or over having done so (See Table 6). However, the young adult males showed a definite tendency to procrastinate longer than females of the same age group.

6. *Delay by the physician*—The diagnosis of early tuberculosis is often ex-

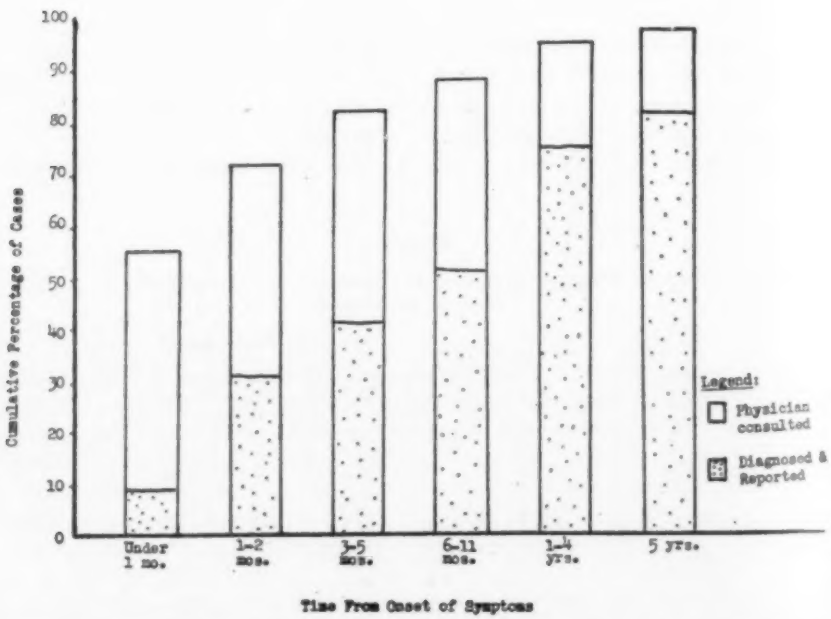

FIGURE 1—Intervals between onset and medical consultation and between onset and reporting for 184 patients with symptoms referable to the chest

TABLE 6

Patients With an Interval from Onset of Symptoms to First Medical Consultation of Less Than 1 Month According to Sex and Age *

Age	Both Sexes			Male			Female		
		Patients With Lag of Less Than 1 Month			Patients With Lag of Less Than 1 Month			Patients With Lag of Less Than 1 Month	
	Total	No.	Per cent	Total	No.	Per cent	Total	No.	Per cent
All ages	157	88	56.0	91	45	49.4	66	43	65.2
Under 15 yrs.	2	1	56.5	1	0	....	1	1	....
15–29 yrs.	67	38		30	14	41.2	37	24	64.8
30–59 yrs.	71	40	55.7	51	29	56.8	20	11	55.0
60 and over	17	9		9	2	....	8	7	....

* Excluding 40 patients with no medical consultation, and 33 patients diagnosed prior to 1941

TABLE 7

Interval from Medical Consultation to First X-ray According to Sex

Interval	Total		Male		Female	
	230					
	No.	Per cent	No.	Per cent	No.	Per cent
With medical consultation	184	100.0	99	100.0	85	100.0
Less than 1 month	93	50.6	53	53.5	40	47.1
1– 2 months	31	16.9	15	15.1	16	18.8
3– 5 months	11	6.0	6	6.1	5	5.9
6–11 months	13	7.1	6	6.1	7	8.2
1– 4 yrs.	17	9.2	9	9.1	8	9.4
5– 9 yrs	4	2.1	1	1.0	3	3.5
10 or more yrs.	15	8.1	9	9.1	6	7.1
No medical consultation	46		23		23	

tremely difficult in practice. It would be expected that a considerable delay might occur in securing a diagnosis in some patients after they sought medical advice. It has been seen (Figure 1) that there was a rather pronounced lag in reporting cases to the health department. This is unfortunate in that it delays the initiation of a concerted attempt to secure hospitalization and to institute control measures in the home.

There was also a considerable delay noted in securing the initial x-ray after first medical consultation. As indicated in Table 7, 67.5 per cent had been so examined within 60 days' time, but after that interval there were 60 patients who did not get an x-ray for months or even years.

The likelihood of long delays in securing the x-ray needed to give a definite diagnosis increased with the age of the patient. There was no observed difference between the sexes in this regard. Table 8 shows that many of the instances of considerable delay occurred in the older age groups. This emphasizes again the relative importance of suspecting the elderly patient with symptoms —the patient with "bronchitis," or "asthma"—on whom an x-ray of the chest should be done routinely at the earliest possible moment.

Time studies of the various lags described have not been frequently reported. Chapman [2] reported a similar analysis of 200 patients in 1928. It is interesting that at that time he found 61 per cent of his cases had consulted

TABLE 8

Interval from Medical Consultation to X-ray According to Age at Diagnosis (Excluding 46 Cases Without Medical Consultation)

Interval	All Ages	0–14 Yrs.		15–29 Yrs.		30–59 Yrs.		60 Yrs. and Over	
		No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent
Total	184	3	..	82	100.0	82	100.0	17	100.0
Less than 1 month	93	2	..	49	59.8	36	43.9	6	35.3
1 mo.–1 yr.	55	0	..	28	34.1	25	30.5	2	11.8
Over 1 yr.	36	1	..	5	6.1	21	25.6	9	52.9

a doctor within 1 month of their first symptoms. In spite of the extensive lay education since that time regarding the symptoms of tuberculosis the proportion of cases in this study who acted that promptly was almost identical (59.8 per cent).

Nicholson [4] recorded a similar interval for her series in Detroit—again 61 per cent having seen a physician within 1 month of their onset. This is of particular interest in that her study included only fatal cases, and the median interval between diagnosis and death was only 6 months.

More recently Mann [3] has reported a similar analysis of the steps leading to a diagnosis of tuberculosis in England. It is not possible to compare his findings with those mentioned above because of different statistical treatment of the material. He did, however, observe the same tendency to increased lags in the older age groups and emphasized the point that much of the delay in instituting early treatment is due to the development of tuberculosis without symptoms or with only "nonspecific" subjective manifestations.

Pope and Chadwick [5] have recently pointed out the importance of determining the proportion of currently discovered cases associated with antecedent contact with a diagnosed case, as some measure of the value of contact examinations. The difference observed in this study between urban and rural areas suggests again the relatively greater importance of the examination of household contacts in rural areas, and the greater need of additional case finding procedures besides contact examinations in the cities.

DISCUSSION

Both from the clinical and the public health viewpoint the early diagnosis of tuberculosis is extremely important. Except for differences in inherent resistance, the prognosis depends largely on the stage of disease at which treatment is instituted. Even if an effective drug is discovered, the degree of pulmonary damage prior to its use in any individual case will undoubtedly determine the period and extent of disability.

Similarly the community suffers an infection hazard from each case which is proportionate to the interval between beginning infectiousness and institution of proper control measures. This interval is a function of the promptness of diagnosis wherever adequate facilities for the treatment, segregation, and education of discovered cases are available and properly utilized.

Furthermore, lay coöperation in any control program is likely to be conditioned by the experience of laymen regarding the measures advised. And when the majority of tuberculous patients are diagnosed in an advanced stage, popular conceptions of the efficacy of sanatorium care are formed on the basis of the discouraging results observed in treating those late cases. Only when it is usual for tuberculosis to be diagnosed early will the dread of sana-

toria disappear and a confidence in current treatment methods become common.

Part of the unsatisfactory results of our older control measures was attributable to the insidious nature of the disease. For many years the chief emphasis in lay education was on symptoms, and our principal professional implements were physician education and consultation clinics for patients with complaints referable to the chest. These measures were obviously incomplete in view of statements by eminent chest specialists that as high as 60 to 70 per cent of patients have advanced lesions by the time they are aware of their illness.[1]

It is important to consider carefully what portion of a tuberculosis control program should be based upon the symptomatic patient and what portion on an aggressive case finding effort aimed at people who are not yet ill. Each requires specific administrative, clinical and technical personnel and equipment peculiar to its own needs.

The "reaction time" of the patient with symptoms in soliciting medical aid must affect in some degree the stage at which his disease is discovered. This particular lag has been measured in the past [2] before the laity was as well informed as it is today. Yet the lag has not changed appreciably when compared to that observed in this study and by other more recent investigators.[3] It is a moot point as to how much the yield of early cases from symptomatic patients might be increased by more intensive work with these ill persons.

During the past few years, and especially since the outbreak of the war, we have gone on the offensive against tuberculosis, no longer waiting for it to make itself apparent before going into action against it, but searching it out where we know it has not yet become firmly entrenched. A beginning was made in this direction with attempts to x-ray all household contacts of reported cases. Though mostly without symptoms, this group has yielded good returns both of total cases and of early cases. More recently this has been supplemented by extensive examinations of other asymptomatic groups—selective service inductees, industrial workers, low income and colored groups, etc. The development of fluorography and paper film methods has made the future extension of such mass surveys feasible and economical.

The provision of diagnostic services for patients with chest ailments must remain one of our basic needs in controlling tuberculosis. But in order to increase substantially the proportion of early cases diagnosed, more is needed than an increased effectiveness of the handling of symptomatic patients. In this group, even when both patient and physician acted promptly after symptoms appeared, less than half of the cases were minimal when reported.

The proportion of minimal lesions discovered among patients examined for reasons other than symptoms was very considerably higher. The use of mass chest x-ray surveys of selected population groups would seem to be the method of choice in securing earlier diagnosis which in turn should affect all phases of tuberculosis control activities through the greater efficacy of treatment in patients with less extensive pulmonary damage.

SUMMARY

Two hundred and thirty recently reported cases of pulmonary tuberculosis and their household contacts were investigated. In addition to the information routinely available from clinic and hospital records, the patients were questioned in detail as to the reasons for their first medical consultation.

The time lags were determined between appearance of symptoms and seeking medical care; between the first visit to a physician (for symptoms refer-

able to the chest) and the initial x-ray; between that x-ray and a definite diagnosis of tuberculosis; and between that diagnosis and reporting of the case to the health department.

The observations recorded indicate that case finding among symptomatic patients cannot be expected to result in a majority of those patients being discovered at a minimal stage; and contact examination among associates of diagnosed patients, although yielding a high proportion of early cases, is limited in its scope, especially among urban residents. Mass roentgenography would appear to be needed if substantial reduction of cases which are advanced at the time of discovery is to be achieved.

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Rapid Treatment For Gonorrhea With Penicillin

Rapid and simplified methods for treating gonorrhea with penicillin which require no hospital care for the patient and which can be used conveniently by physicians in private practice or by clinics were recently reported by physicians of the U. S. Public Health Service, Washington, in connection with the Service's responsibility for treatment of men from the Coast Guard and Merchant Marine. One schedule of five treatments can be completed in 7½ hours.

Patients are required to be at the clinic for only a few minutes at each of the five or six times designated for penicillin injections. These rapid treatment schedules were developed because of the urgency of returning men to active duty. According to these reports, the new methods have been effective in almost as large a percentage of cases as the standard 12 to 21 hour treatment schedules. These so-called out-patient schedules of treatment were developed by Drs. C. J. Van Slyke of the Venereal Disease Research Laboratory, Staten Island, N. Y., and S. Steinberg of the U. S. Marine Hospital, New York, N. Y.

Merit System in Public Health

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PRESIDENT Garfield was assassinated by a disappointed office seeker. His death resulted in the birth of the Federal Civil Service Act in 1883. Provisions of this Act were well conceived. They have guided states and cities in the formulation of their civil service legislation.

A merit system as generally understood is a civil service without benefit of legislation. Authorization for its development is based upon regulation and not law. Their objectives are the same. Briefly stated, these are: (1) selection of personnel by open competitive examinations admission to which is based upon qualifications and experience; (2) provision of promotions and increased compensation based upon proven ability and length of service; and (3) elimination of partisan politics in the selection, appointment and promotion of personnel.

Representative Fulbright of Arkansas made the following pertinent remarks [1]:

"Most of the faults in government can be traced to personnel. Business, because it is profitable, has attracted the smartest people. If you can have a good government—a reasonable, honest and clean government with intelligent people in it—other problems will solve themselves."

It is our desire to present to the public health worker information about the merit system; what it is, how it works, its advantages to the individual and to the public, and finally to list the progress that has been made up to the present time. Our experience leads us to believe that many persons in public health have not been well informed about this program. Their complete understanding and intelligent support are vital for the development of a successful merit system.

Public health leaders have long appreciated the need for making public health positions more attractive in order to secure and retain qualified and experienced workers. Several of the foundations, notably Rockefeller, Kellogg, and Commonwealth, have done much to stimulate improvements in public health organizations and to encourage graduate training of professional workers in public health. These foundations together with the U. S. Public Health Service and the American Public Health Association have shown that capable personnel are essential to provide efficient, economical public health services to American communities. It was demonstrated that the death rate from typhoid fever in any community could be maintained at zero; that children need never die of diphtheria; that no community need have an outbreak of smallpox; that milk safe for human consumption could be produced; that public water supplies could be developed which would not carry contamination into homes; and, in general, that an extremely low death rate from communicable diseases in any community is very largely a purchasable commodity, provided that trained and efficient public health personnel are employed and are not hamstrung by vested interests.

These demonstrations were well known to the state health officers at the time of passage of the Social Security Act of 1935. Title VI of this Act gave authority for the appropriation of funds to be administered by the Public Health Service (through the state health authorities) for the purpose of assisting state and local public health agencies in developing and expanding such health services, and in providing funds to be used for training personnel. These funds are allotted to the states by the Public Health Service and have given decided impetus to the development of state and local health departments manned by full-time qualified personnel.

Since 1936, the state health officers have invested annually more than one million dollars of these funds in training personnel. There has accrued a valuable backlog of investment in trained personnel. Our American armed forces have drawn heavily on this supply of trained specialists to insure the protection of the health of our fighting forces. The states are maintaining their training programs to a considerable extent even during the war period.

Expenditure of such large sums annually for this necessary and worth while purpose receives full support and encouragement from the Public Health Service and the Children's Bureau. These agencies, being charged with responsibility for administering federal funds through states for public health improvement are vitally interested in the careful selection of trainees and in the establishment of adequate standards for their employment in public health work following training.

After such sums of money have been spent on these individuals to insure their greater effectiveness, it is true economy and efficiency to encourage their retention in public health work by providing: an equitable compensation plan, opportunities for advancement based upon qualifications of training, experience and ability; and last but not least, freeing employment from partisan politics, personal favors, and family ties.

Amendments to the Social Security Act passed in 1939 by The Congress provided that states submit plans for personnel administration on a merit basis to certain federal agencies administering funds made available by the Act. Those agencies which were not included in these amendments, wrote into their administrative regulations a requirement similar to that imposed on the other agencies by Congressional Act. Thus, administrative plans for the funds made available to state and local governments for Social Security programs, including public health, require that state and local units of government employ personnel and administer the activities of personnel under a merit system which is acceptable to the federal administrative agency.

Regulations and policies of the U. S. Public Health Service for the administration of funds through grants-in-aid to the states include certain standards for state plans of personnel administration. These policies and regulations are established by the Surgeon General of the U. S. Public Health Service after consideration and approval by the Conference of State and Territorial Health Officers. The Public Health Service reviews plans for personnel administration as they affect public health personnel in the states.

In addition to the responsibilities placed directly on the Public Health Service by Congressional Acts, there are certain relationships with other federal agencies which often involve the Public Health Service. The Social Security Board of the Federal Security Agency also has certain responsibilities conferred by The Congress in regard to personnel within the states. Under varying types of organization the re-

sponsibilities placed on the Board and the Public Health Service are in some states administered through the same department. It is therefore desirable that the basic policies and regulations of these two agencies be uniform.

The Children's Bureau of the U. S. Department of Labor also shares this responsibility and participates in all state health programs. These three federal agencies make every effort to develop uniform standards for recommendation to the states. Harmonious agreement and clearance in regard to policies of personnel administration in state plans have been developed.

In addition the Hatch Act places certain responsibilities on federal agencies administering grant-in-aid funds.

Progress in state programs of personnel administration for public health employees is divided into three parts: (1) merit system rules including State Civil Service laws; (2) classification, compensation schedules, and (3) operating procedures.

Proposed rules for merit system organization (including 20 states with Civil Service laws which encompass health department employees) have been prepared by each of the states. Provision is made for a council or board which is responsible for policies and guidance. An executive officer of the Merit System program is required by rule or law and his duties and jurisdictions are specified. Agency personnel officers and their duties are given. Among other provisions included in these rules are: (1) method of selection of council and supervisor; (2) selection of personnel by examination; (3) procedures for various types of appointments, leaves, separations, disciplinary actions, reinstatements, appeals, and other personnel actions; (4) general characteristics of the classification-compensations schedules; (5) procedures of payroll certification.

True to the democratic organization of our states these rules differ in their content in accordance with various state laws and regulations and the circumstances which prevail in the respective states. Throughout, however, the plans and regulations conform in general to sound principles of public personnel administration. Rules and laws of 42 states have been accepted as being in substantial conformity with the Merit System policies of the Public Health Service as of July 1, 1944. States have met more difficulty in developing classification-compensation plans than in formulation of rules and laws. Analyses of positions, required preparation through training and experience for these positions and the establishment of equitable rates of pay have been stumbling blocks. Gradually the states are making progress in solving these problems, but at present only 14 of the states have submitted plans which conform to the standards of the Public Health Service.

Much profitable effort has been expended by the states in preparation of classification-compensation plans based on job descriptions, degree of responsibility in the position, degree of hazard to the employee, etc. This process has led to more basic alignment of positions within departments, consideration and reconsideration of requirements for professional and sub-professional positions, optimum ratios of professional to sub-professional personnel in the various public health activities, adjustment of salaries toward equity of pay for equal work, responsibility and hazard of employment and utilization of compensation schedules in budget planning. Past personnel practices have been carefully scrutinized by many public health administrators and progressive steps made by salvaging the better of these and instituting more desirable practices in lieu of those practices found undesirable. Adoption of well considered compensation-classification schedules by state

and local health authorities have proved to be economical per unit of service rendered; have produced a stable base for future personnel actions; have stimulated individual employees toward self-improvement; and have enhanced the security and stability of the group. Timely adjustments of classification-compensation schedules have gone far toward alleviating stresses of personnel shortage precipitated by the national emergency. States having the more progressive plans and more adequate installations of personnel administration have tended to suffer less from personnel shortage during the emergency although each state has made great contribution in specialized personnel to the military services and to war industry during this period.

Advantages in the field of public health work which experience has shown to accrue from a sound merit system program include:

1. A uniform, publicly-known procedure through which competent qualified personnel may be employed. All recruitment is difficult in wartime. Part of the difficulty lies in the reluctance to assign to auxiliary personnel tasks which formerly were done by professional classes. Probably the largest obstacle is the inability or unwillingness to compete with industry and private enterprise in financial compensation for the services rendered. We are fettered by tradition and custom in paying low salaries to public health workers. Also, many additional responsibilities have been placed upon public health departments demanding new and additional services. There is nothing in a sound state merit system which increases recruitment difficulties that have not been placed there by the agency responsible and which cannot be removed. Realistic revisions of merit system plans have been offered by many state health authorities. These have been welcomed by the Public Health Service and referred to other states for consideration. States have been urged to include in their merit system classification plans on "emergency class" for the duration of the emergency or until personnel qualified for standard classes become available. Modified duties and responsibilities, with sub-standard qualifications, are proposed for such positions. As an example, the standard class specification may call for graduation of the nurse from a hospital having at least 100 daily bed patient average. During the emergency, however, nurses from smaller hospitals can be taken to perform less responsible work under more immediate supervision. It is reasonable to suppose that there will be some respite from the dearth of professional personnel shortly following the war, but the potential problems necessitate leadership and masterful planning on the part of public health administrators, those who train public health specialists, and the personnel officers of state and local health departments.

2. A procedure for the training of persons for a career service in public health.

3. Establishment, as a basis for personnel selection, of qualifications and experience necessary for particular positions.

The American Public Health Association, through the Subcommittee on Merit Systems of the Committee on Professional Education, has performed an excellent service, both in stimulating interest in the development of merit system programs and in providing test items to be used in the examination of persons in the several specialties. Items are suggested by qualified persons in the field. These are reviewed, edited, and made available to the states.

Sixty-five examinations in the field of public health nursing have been given in 15 states and 1 city. Examination material has been prepared in the field of public health nursing, nurse-mid-

wifery, and orthopedic nursing. Test items are also available for administrative health officers, laboratory programs, and environmental sanitation.

4. Standardized compensation schedules for positions demanding comparable qualifications and pay increases based on efficiency and length of service.

5. Provision of more economical and efficient public service through the employment of competent and qualified personnel who are motivated by a desire to render service rather than to seek special favors.

6. Plans on which retirement benefits may be based.

7. Protection for the public health worker from influences resulting from political changes, from the whims of administrators, and the elimination of at least some of the confusion which may accompany a change in state or local political power. On the other hand, methods are provided for the administrator to discharge employees who do not develop and progress as normally expected. But the employee is discharged for cause, with a public hearing if requested. Meriam [2] states that "in the national government, the truth is that it is easier to fire a classified civil service employee than it is to fire the employee who holds office by virtue of live, current political connections."

8. Reduction of effect of pressure groups on personnel administration, allowing the administrator more time for his work in public health.

When the personnel of state and local health departments enjoy a reasonable degree of security, and when plans have been put into operation and are known to the personnel for whom they are prepared and to the educational institutions preparing those who would choose careers in the specialties of public health, then considerable progress will have been made. At present there is much to be desired in the actual operations of the states' personnel administration programs. These operations take time to institute even when there is the best intent on the part of administrators. Experience in working with state and local public health administrators indicates that problems of personnel are and have always been the most persistent and most important. This was true before the emergency as well as now. Personnel selection, retention, and general improvement in standards of employment will be one of the major problems of public administrators after this emergency. Some public health administrators show little desire to develop progressive plans for personnel administration. There are a few who openly prefer political partisan practices including selection and retention of officers and others charged with protecting the health of the public on the bases of friendship, personal favors, and family ties, rather than qualifications of ability, training, and experience. Fortunately few of the latter type administrators become interested in public health services.

Petty politics have proved of little assistance in offering protection against diphtheria, typhoid fever, in the reduction of incidence of venereal disease, or in the solution of other public health problems. Full-time qualified public health personnel have proved quite efficient in reducing disease incidence and in raising the health level of communities. Continued public health progress in the United States depends materially on the quality of service rendered by state and local health department personnel. Provisions for equity of pay for equal work, recognition of responsibility involved, and hazard of the work of the employee will contribute to the elimination of disease hazards. Other phases of sound personnel administration, too, must be utilized in order that qualified persons

may be selected and retained to render service over continuing periods of time —that there may be incentive to study and progress as a public health worker —there may be reasonable security for the meritorious worker—the "dead wood" of health departments may be systematically eliminated.

Basic plans for such procedures have been laid. Their fulfillment rests in the hands of administrators. The blue print is ready—construction of fully effective programs has yet to be accomplished in most states.

Problems of personnel administration are never static. Following World War I a series of problems were presented; the depression period brought entirely different problems with a lush and overabundant labor market; whereas, our present emergency period has produced a great shortage of labor. What the nature of personnel supply will be following this war period is pure conjecture, but it seems reasonable to suppose that state and local health departments will not be able to secure for some time thereafter an adequate supply of trained public health workers. If this proves to be the case, planning for training of personnel will be essential. Plans should be completed for determining how those who have been in the military services of the nation and those who return from essential war industries may be included in public health programs. If industry expands in the post-war period and continues to demand the entire labor supply, public health agencies may continue to have need for aggressive personnel policies.

CONCLUSION

It has been stated: "The health officer occupies the position of agent to whom the public entrusts certain of its resources in public money and coöperation to be so invested that they may yield the best returns in health."[3] If this be true, the health officer must have a system by which capable personnel can be selected and retained in order that he may fulfil his obligations to the community in the protection and promotion of its health. Personnel determine the success or failure of any organization, private or public.

A merit system provides a means of attracting and retaining qualified and experienced individuals. This is accomplished by open competitive examinations, selection on basis of merit, promotions to those demonstrating initiative and ability plus length of service, and finally compensation commensurate with the responsibility of the position. Concisely, a merit system for public health departments provides a career service in place of the haphazard type of personnel administration now commonly, of necessity, employed.

The advantages of a merit system are many, both to the public and to the employees. Taxpayers' returns in health can be best achieved by full-time well qualified professional personnel selected on the basis of merit and experience through well administered, competitive examination.

Sound personnel administration within state and local health departments is a responsibility of the state and local administrative health officers.

The strength of America is its man power. Disease is man's worst enemy. The employment of inefficient, dissatisfied personnel hamstrung by vested interests and by penny-wise dollar-foolish budgets amounts to sabotage in any community's war against disease.

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Popular Health Education

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NO matter what the authorities do on behalf of the public health, their measures will fall short of maximum success unless the individuals of the community accord ready and intelligent coöperation. To this extent it can be said that the individual himself is often the final arbiter in regard to his state of health. It is thus of first importance to interest the public in medical measures and to teach them self-help in health matters. It is to these ends that popular health education is practised.

The commercial publicist indicates to us many principles worth emulating, such as continuity of effort, novelty of presentation, and the objective approach.

The health publicist enjoys advantages, for it is certain that the people want what he is out to offer them. Then there is the point that, whereas the commercial advertiser has to face competition, health educators are all, as it were, advertising the same commodity.

Although an analogy with commercial practice is helpful, it is to be emphasized that health education comes essentially within the professional sphere and must retain a scientific basis.

ENGLISH PRACTICE

The Ministry of Health takes the initiative centrally in regard to popular health education, and in wartime works in complementary fashion with the Ministry of Information in this matter. In practice much is delegated to a body known as the Central Council for Health Education acting as agent for the Ministry of Health in this connection. The Central Council is widely representative, and among the bodies that nominate members to it are the Ministry of Health, the Board of Education, the Society of Medical Officers of Health, the British Medical Association, and various associations of local authorities.

In the past there has been a large number of separate voluntary bodies each dealing with some limited aspect of health education. Many of these still exist; but the tendency is to rationalize the position and to widen the scope of the Central Council.

During the war, the Ministries of Health and Information and the Central Council have increased notably the output of health propaganda. In these activities they work as far as possible through the well tested machinery of the local authorities and their public health departments.

The wartime posters produced centrally have reached a consistently high standard. No instance of this is more striking than the series of posters designed to illustrate the slogan "Coughs and Sneezes Spread Diseases." The primary injunction is to make proper use of the handkerchief in order "to trap the germs."

Antivenereal disease propaganda, in

* Guest of the American Public Health Association at the fourteen state and regional meetings during May and June, 1944.

the form of posters, articles, and advertisements in the national newspapers and journals, has also been persistent and striking. Some measure of its effectiveness is to be found in the marked increase at all venereal disease treatment centers of the persons attending for examination at the centers and found to be "not V.D."

BROADCASTS

From time to time, during the past two years or so the Chief Medical Officer of the Ministry of Health (Sir Wilson Jameson, K.C.B., M.D.,) has talked on the air in convincing fashion on outstanding health topics. His broadcasts on the venereal disease problem and on immunization against diphtheria are classics.

Popular features in the British broadcasting program are the regular talks by the "Radio Doctor." In these talks, everyday health matters are dealt with in a scientific but homely way.

A good medium of health education is also provided by the BBC in the form of discussions—sometimes between experts and sometimes between ordinary folk—on health subjects.

FILMS

In regard to health propaganda films, large, popular and "unconverted" audiences are most readily to be found in the ordinary commercial picture houses. Here at once is a difficulty for a health film—with, for example, an antivenereal disease narrative—as it must often sacrifice scientific and ethical qualities if it is to be a box-office draw.

Then again a propaganda film may often suffer from a wrong type of "supporting" program, as, for instance, at a well known cinema where I saw as a complement to the film "Social Enemy No. 1," another entitled "Ladies Crave Excitement"!!

The production of health films—above all antivenereal disease films—should preferably be outside the commercial sphere, and the films should be prepared under scientific direction. In addition to the picture houses, there are plenty of useful fields for the showing of such films, as, for example, in the factories. First class films are in fact readily available through the official agencies already mentioned.

SEX INSTRUCTION TO YOUNG PEOPLE

In the campaign against venereal diseases, sex instruction to young people is of basic importance. In my own City of Coventry, much work has recently been done along these lines in the youth centers.

At each center a special meeting is arranged from time to time consisting of three sessions, viz.: (a) a half-hour talk to the girls, (b) a half-hour talk to the boys, and (c) a mixed session on "brains trust" lines. The talks are made by a doctor and the brains trust is composed of a doctor, a youth organizer, and a school teacher.

The talks deal with the nature of the sex organs, and with reproduction. Although the wording of the talks is simple and direct, the scientific basis is preserved. In the girls' group special information is given on menstruation. In each group brief reference is made to the nature and dangers of venereal disease.

At each center, attendance at the sex instruction meetings is of course voluntary and normal club activities are available on the same evenings for any boys and girls who elect not to attend the meetings. The large majority do in fact attend. It is interesting to note that the reaction of the parents of the young people concerned has been universally favorable to this work.

SEX INSTRUCTION IN SCHOOLS

The policy in regard to sex instruction in schools is probably more progressive in America than in Britain

at the present time. In Britain, however, there is a growing advocacy on behalf of this branch of education, and in fact much useful work is already being done on these lines.

There is no doubt that it is easier for the teacher (assuming a proper training for the work) to impart sex knowledge than it is for the parent, for even doctors will say that it is less difficult to tell these things to other people's children than to their own.

It seems clear that no child should leave school without a simple knowledge of the form and functions of the reproductive organs. To achieve this, the teachers should lead up through plant and animal life to the human process. Vocabulary is all important in order that the sordid terms so often picked up by school children may be avoided.

Instruction in simple general hygiene and in the health work of local authorities is also vitally important and this is now pretty general in British schools today. Visits by the older girls to infant welfare centers, etc., and visits by the older boys to waterworks, etc., form an indispensable part of the work.

THE MEDICAL BRAINS TRUST

The "brains trust" idea * has won a wide acceptance and in no quarter is it more popular than among the workers. It represents education in a palatable form. It has the advantage that it deals with points of real popular interest—because the questions dealt with are posed by the listeners themselves. A big attraction is the genuine spontaneity of the answers. The conversational nature of the brains trust session, too, is in happy contrast with the formality of the average lecture or "pep" talk. The brains trust has great possibilities in health education.

Recently in the Rootes' Group of large engineering works in England a series of Health Weeks was arranged through the enlightened policy of the managements and in each the program included a Medical Brains Trust. This undoubtedly was the most popular feature.

Before the day of the brains trust session, the workers had been invited to submit their questions, and prizes were offered by the management for the best questions. The entries were judged in secret by a special committee and the best dozen questions were selected to put to the brains trust. Needless to say the members of the trust had no previous knowledge as to the nature of the questions.

The typical scene is a large factory canteen during the lunch hour. There are some 6,000 workers seated at their meal—truly a grand audience. There are four of us on the trust and the question-master. The managing director introduces the question-master, who in turn introduces us. We sit round a table on a platform at one end of the huge canteen with loud-speakers before us.

QUESTIONS AND ANSWERS

At a typical factory brains trust session the following were the questions put and the answers given. The answers will of course be obvious to a medical audience but they are included merely for purposes of completeness.

The first question is a far-reaching one: "Is it not time for a certificate of good general health to be produced as a condition of marriage?" We all agree that a certificate of freedom from transmissible disease—venereal disease, for example—is obviously desirable in respect of persons proposing marriage. It is the majority opinion, however, that medical certificates of fitness at marriage should not be required compulsorily until a strong

* Corresponds with the "Information, Please" pattern.

antecedent public opinion is more in evidence.

The next question is: "Do you think that work in modern factories is detrimental to the health of middle-aged women who have been drafted to industry?" We note here the reference to modern factories which presupposes good environmental conditions. The view is expressed that the ills of middle age in women tend to be exaggerated. Thus given decent working conditions —and reasonable travelling facilities to and from the factory—war work in the factory is not likely to harm the health of the workers in question.

Now comes the question: "The health of the people in this country has been better in wartime; will the brains trust give the reasons for this?" Rationing and food supplies are obviously a main issue here, and it is generally agreed that present conditions have resulted in a more equitable distribution of essential foodstuffs, and that all get sufficient to maintain health. In regard to child nutrition, the policy of the Ministry of Food in distributing fruit juices is commended. A point that is well brought out is the psychological satisfaction of useful work and the present absence of unemployment.

The inevitable question now follows, viz.: "Can venereal infection occur through any means other than sex relationship with an infected person?" The answer here is—for all intents and purposes, no! The notion that venereal disease can be contracted from infected towels, closet-seats, etc., is largely erroneous. Such an event is in fact extremely rare.

Question number five is: "In connection with the blood donor scheme, what prevents infections like syphilis being transferred from donor to receiver?" The reply is of course that the blood of donors is suitably tested and grouped before possible use.

The next question is of quite a different kind. "Flat feet and malformed feet appear to be very prevalent; what are the causes?" We deal at some length with the factor of incorrect footwear, and indicate the right types of shoes, notably for children. The value of corrective exercises is emphasized.

Time permitted of one more question only at this session, viz.: "School children have regular medical and dental inspections; would it be a good thing if this could be continued after school-leaving age?" Our answer is in the affirmative. It is agreed that regular overhaul by the family doctor and dentist at given intervals would be a good thing for the general population, because by this means departures from the normal would be ascertained at an early stage when treatment would readily be effective. It is mentioned that, in America, life insurance offices commonly offer these facilities free of charge to their policyholders, the idea being to lengthen the lives of persons insured with them.

CONCLUSION

It has been essayed to deal briefly with a few aspects of the theory and practice of popular health education. In spite of all official efforts in this field, there is yet much to be done. The greatest advance of all will come when the family doctor elects to become a missionary of preventive medicine.

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THE SECOND WARTIME PUBLIC HEALTH CONFERENCE

THE Annual Meeting held in New York (October 3–5) was again an unqualified success. The attendance (3,984) compared well with the present total membership of 9,163. The program was of high quality. President Felix J. Underwood of Mississippi guided the General Sessions and the Governing Council with the firmness and graciousness and the sure choice of words which make him admired and beloved. As President for 1944–1945, we welcome John J. Sippy of California, the first county health officer to receive this honor; and the choice of Milton J. Rosenau of North Carolina as President-Elect gives delight to all the disciples of the Dean of Public Health in the United States—that is, to all of our public workers, everywhere. The award of the Sedgwick Memorial Medal for 1944 to Ernest W. Goodpasture was a fitting tribute to a scientist whose discoveries underlie much of our practice in the control of virus and rickettsial diseases.

As is natural in a war period, the program this year included fewer new advances in the fields of basic scientific research than has often been the case. In the field of new technics, the extraordinary possibilities offered by the use of DDT were, of course, outstanding; this material gives us methods for the destruction of many insect vectors with an efficiency that is almost unbelievable. The Army Commission on Neurotropic Diseases reported some of its studies on Infectious Hepatitis—the outstanding "new" disease of this war; and demonstrated the production of this infection in human volunteers by feeding virus derived from excretal material. The possible introduction into this country of anthropod-borne encephalitides was discussed. A group from the Michigan School of Public Health presented perhaps the most comprehensive epidemiological study of poliomyelitis ever made, revealing the overwhelming influence of contact infection (stools positive in 75 per cent of familial contacts, in 18 per cent of non-familial contacts, in 2 per cent of non-contacts). In regard to the important question whether the sterilization of air in barracks is justified in routine practice, investigators at Northwestern University (using triethylene glycol) and navy doctors (using ultra-violet radiation) reported in the affirmative; the gain effected in the second of these studies was, however, slight. Investigators from North Carolina

compared the findings from tests of subclinical malnutrition with actual family dietaries with disturbingly slight concordance of results.

It was the field of administrative practice rather than of epidemiological research which dominated the conference. The Health Officers Section opened its program with a panel discussion on local health administration which was vital and constructive. Discussion was continuously and spontaneously maintained from the floor and every speaker "made sense." To the oldsters in the A.P.H.A., the appearance each year of more and more able and informed and earnest young city and county health officers is a thrilling experience. Methodology in the control of nuisances was helpfully discussed in the Engineering Section.

Outstanding in this field were preliminary reports of Haven Emerson's Committee on Local Health Units, which will give us a framework for a really national health program, with at least minimum basic full-time service (at $1 per capita) for 1,169 well planned areas covering the entire country—instead of the present mean expenditure of $.50, with 40 per cent of our population lacking any full-time local health service. The C.A.P. program for a National Reporting Area for health practices [1] will be invaluable in connection with this—or any other—national health program.

It is clearly impossible even to refer to the 36 general and sectional sessions held in New York. The joint session at which a coöperative plan for the health education of industrial workers by the Fort Greene Industrial Health Committee (Brooklyn) aroused particularly wide interest. It is gratifying to note the progress of our two youngest sections, on School Health (organized in 1942) and on Dental Health (organized in 1943).

One of the most striking features of the Conference was its recognition of international health problems. At the first general session Raymond B. Fosdick, President of the Rockefeller Foundation, delivered the Third Annual Delta Omega Lecture on "Public Health as an International Problem," published in this issue of the JOURNAL—a splendidly effective presentation of our common responsibilities as citizens of "One World." The First Special Session, on "Today's Global Frontiers in Public Health" in which representatives from five nations participated, carried our thoughts on this line further, the address of Szeming Sze, of China being particularly impressive. An Association Committee on Pan-American health problems under the chairmanship of Louis I. Dublin is making its contribution; and the fact that our revised report on Communicable Disease Control seems likely to be adopted by at least three other nations is an example of highly practical international service. The Association by official resolution offered its assistance to UNRRA in its difficult tasks; and called for the creation of a new international health organization as a part of the future world order.

The most outstanding problem of the conference was that of medical care. For twenty years or more this topic has come up in our annual sessions; at last, in 1944, it was faced with courage and determination. Mayor Fiorello H. LaGuardia opened the ball at the second general session. With his inimitable vigor he told us "When knowledge is not applied, it's *wicked*" and that "People have a right to medical care"; and he described the program for a voluntary health insurance plan, with complete coverage, for employees of the city and of private industry which will soon go into force in New York City. A discussion before the Maternal and Child Health Section dealt with the problem of medical service for migrant workers and the excellent way in which it has been handled

by the Farm Security and War Food Administrations. A Special Session was devoted to addresses by a group of members of the Subcommittees on Medical Care of the C.A.P. (under the chairmanship of J. W. Mountin), on the content and administration of a Medical Care Program. Excellent programs of this sort have, however, been presented at previous meetings. What is significant about 1944 is that the Association at last took action. On recommendation of the C.A.P., and after full discussion at two meetings, the Governing Council formally adopted the report of Dr. Mountin's Committee on Medical Care in a National Health Program * as the official policy of the Association.

This action puts the A.P.H.A. squarely on record in favor of a national program which shall make available for all the people of the United States complete and adequate medical care of all essential types. It makes it clear that such an end can be attained only by a decentralized but federally aided program; that it must be supported by compulsory insurance plus taxation or by taxation alone; and that it should be administered by a single public health agency at the federal, state, and local levels.

This is a bold pronouncement, which required real courage to adopt. The policy outlined is sound and will, we believe, receive the very serious consideration of legislators concerned with this challenging problem. It is fitting and proper that the first clear and constructive statement of a national program of medical care to be made by any national body of experts should come from the A.P.H.A.—since the health officer represents professional knowledge on the one side and community responsibility on the other. The physician is bound by a Hippocratic oath which calls for the highest standard of service to those individual patients who call upon his skill. The health officer is the one person whose oath of office lays upon him the responsibility of planning for the health of the community as a whole. That responsibility has been assumed—with modesty, but with a compelling sense of public duty—in the adoption of the policy formulated in New York.

* With minor amendments which clarified but in no way modified its objectives.

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SHALL WE CONTROL VENEREAL DISEASE?

THE control of syphilis and gonorrhea is a problem which, at this moment, presents a very special challenge to the health administrator. New discoveries open up dazzling prospects of advance; but our hopes are modified by certain serious doubts and qualifications. Statistical results give evidence of tangible achievement; but our experience after the first World War raises the question whether the results of our program—though good—are good enough.

The combined incidence rate of the venereal diseases in the U. S. Army in 1943 (under 30 per 1,000 per year) was less than half the average rate for our army in the first World War. Yet, even with this relatively low rate, gonorrhea was still at the top of the list of infectious diseases in the armed forces and syphilis near the top. Reports on civilian health made to the U. S. Public Health Service, by local health authorities for the seven months of July, 1943, to January, 1944, inclusive, showed 281,537 cases of syphilis and 181,322 cases of gonorrhea, as

compared with 331,421 and 160,000 respectively for the corresponding period of the previous year, with a rate of a trifle over 4.0 per 1,000 for syphilis and about 2.5 for gonorrhea. The lower rate for 1943 as compared with 1942 is, however, obviously influenced by the absence of a large proportion of the young male population; and it is important to remember that it was *after* the first World War that a true epidemic of syphilis and gonorrhea swept over the world, affecting neutral as well as belligerent countries.

The development of new and more effective methods of treatment is a major factor on the favorable side of the ledger. Dr. George Baehr, in an address before the Committee on Tuberculosis of the State Charities Aid Association of New York, last spring, said: "The recent introduction of rapid treatment methods for early syphilis has made it possible for the first time to eliminate the disease. The five day trip technic for massive arsenotherapy, and subsequent modifications, with and without the artificial induction of fever, can cure 80 to 90 per cent of patients with early syphilis, and render them non-infectious within a week." It is true that with the use of powerful arsenicals severe toxic reactions will sometimes appear and occasionally death will result. But the 18 month procedure, in use for over thirty years, also had some untoward results; and, since less than a quarter of the patients treated by this old method completed their course, it is clear that the new modes of using arsenicals represent a very real advance. Furthermore, as the sulfa drugs followed serum in the treatment of pneumonia—so penicillin has followed rapid application of arsenicals in the treatment of syphilis. "The results of penicillin treatment are at least as good as massive arsenotherapy, and there are no toxic effects whatever. Eighty to 90 per cent of all patients with early syphilis can be rendered non-infectious and perhaps cured within a week. Sufficient time has not yet elapsed to speak positively of a cure, but the results are most encouraging." Even more dramatic in a way than these striking improvements in the treatment of syphilis is the fact that heat treatment and the use of sulfa drugs and penicillin have now made possible the prompt and effective treatment of gonorrhea; for the attitude of health officers toward this disease was—until five years ago—almost completely pessimistic.

On the other hand, the advances in the therapy of syphilis and gonorrhea create new problems for the health administrator. A certain proportion of cases of early syphilis which receive rapid arsphenamine treatment or penicillin treatment will be apparently cured without the elimination of the spirochetes and will relapse; and Koch, Mathis, and Geiger [1] found positive cultures in 32 per cent of asymptomatic cases of treated gonorrhea. Many more cases of syphilis successfully treated by modern methods will become susceptible to reinfection than was the case with older and slower procedures; therefore, it is vitally important to seek out the primary source of infection (to which such cases may be again exposed) and to discover the contacts whom they may have infected before coming for treatment.

Clearly, the use of improved treatment methods intensifies the need for that rigorous epidemiological control which will remain the basis of our public health program in this field. Syphilis and gonorrhea are not vague and intangible social plagues; they are communicable diseases, proceeding—in a given community, at a given time—from a relatively small number of foci. They can be controlled by what Dr. W. L. Munson of the New York State Department of Health once described as "sole-leather epidemiology," followed by persuaded or enforced treatment. What can be accomplished is well illustrated by the work of the Institute

for Control of Syphilis of the University of Pennsylvania Hospital. Kresge [2] reports that, of 4,861 syphilitic draft rejects followed up, 72 per cent were under treatment or were brought under treatment, at a cost of $2.13 per case.

In most communities it is the health department which must take the lead. It is the health officer who must decide whether we shall control syphilis and gonorrhea, whether the new technics at our disposal shall be used to good effect, whether we shall conquer these diseases as we have conquered diphtheria.

Dr. Baehr tells us that: "The time has come when the public health services, state and local, as well as federal, must step in and take over the problem of therapy as a routine public health measure. The establishment of Rapid Treatment Centers in many parts of the country, with the assistance of the U. S. Public Health Service and with funds made available by the Congress, is an example of what should now be done on a broader scale. Rapid treatment should be made freely available without charge to every person with early syphilis, on the one condition that he or she provide the health department with information which will enable them to bring the contacts under treatment. Rapid treatment with penicillin requires hospitalization for a week. Beds must be made available temporarily until the disease has been wiped out.

"Now, let a new broad gauge viewpoint animate the public health services and the medical profession! We must deal with syphilis as we would with plague, cholera, or any other highly communicable disease, and wipe it out by providing adequate funds and facilities for free diagnosis and treatment for all infected persons and their contacts. The control of this widespread disease which infects hundreds of thousands each year is now in our hands if we will place the responsibility for treatment wholly in the public health services and, as with other highly communicable diseases, cease worrying about infringing upon the vested interests of the private practitioner. As a practitioner of more than 35 years, I call upon the public health services to seize this new opportunity and do a complete job!"

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MORE POWER TO THE PUBLIC HEALTH SERVICE

WE have referred in an earlier issue [1] to the legislation of last spring in regard to the U. S. Public Health Service. A second and even more important law was enacted during the summer, sponsored by Representative Bulwinkle.[2]

This Act for the first time brings together in compact and orderly fashion various laws applicable to the Public Health Service which have been accumulating for more than a century and a half. Numerous statutory amendments imposing new duties and authorities, couched in different terms, and often providing new procedures without expressly repealing previous conflicting requirements have not only left gaps in the operating framework of legislation but have created serious ambiguities and inconsistencies. The new law brings together all these various provisions, reënacts those which are active and permanent, repeals those which are obsolete, eliminates inconsistencies in language and broadens powers that have been found to be too restricted.

Among the new substantive provisions, it is gratifying—in view of the great

importance of public health nursing in our present program—to note that nurses, as well as scientists in such fields as biology and zoölogy, are now made eligible for appointment to the regular commissioned corps of the Service; and that provision is made for allowances for female commissioned officers on account of actual dependents.

The authority to formulate regulations, which under previous laws was confused and illogical, is now clearly allocated to the President, the Administrator, and the Surgeon General, in accordance with the nature and importance of these regulations. Quarantine laws and regulations may now be applied specifically to civil air navigation.

The limits of appropriations for grants to the states for public health work are increased to $20,000,000 annually, of which $2,000,000 is available for direct federal expenditure in relation to such grants. A new authority is added for grants for the control of tuberculosis in the sum of $10,000,000—with a very broad definition of what such control may include.

Particularly valuable are many provisions in this bill which give the Service increased freedom of action in regard to administrative detail. Special emergency positions can be authorized by the President in time of war or other emergency; restrictions to annual allotment and quarterly payment of grants to states are replaced by a provision for allotments and payments to be made " from time to time "; there is to be freedom for emergency treatment at Service Hospitals for those not ordinarily eligible; and considerably greater flexibility in procedures for isolation and quarantine. The scope of the research program of the Service will be materially broadened.

The 78th Congress has taken time off from " politics " to produce at least one highly constructive piece of legislation.

REFERENCES

1. The U.S.P.H.S. *Editorial, A.J.P.H.*, 34, 6:656 (June), 1944.
2. Public Health Service Act; Act of July 1, 1944; Public Law 410, 78th Congress, 2d Session.

BOOKS AND REPORTS

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted.

Clinical Evaluation of the Rehabilitation of the Tuberculous—*By Louis E. Siltzbach, M.D. New York: National Tuberculosis Association,* 1944. 70 pp. Illus. Price, $.50, paper; $1.50, cloth.

To be foremost in anything on this busy planet is proud achievement. That distinction must be awarded the Committee for the Care of the Jewish Tuberculous of New York City, in devising and perfecting a scheme for the discovery of tuberculosis cases, their adequate care and treatment, and restoration to social and economic usefulness. The crowning achievement has been the successful operation of a garment manufacturing plant, planned and built for the part-time and full-time employment of tuberculous men and women. There are 170 employees, accepted without regard to race, color, or creed. None but those who have attempted a rehabilitation program can fully appreciate what a difficult road has been traversed by the promoters.

Though it is said that every institution is the lengthened shadow of a man, I see here two shadows, cast by Fred M. Stein and Edward Hochhauser, respectively President and Executive Secretary of the committee.

This clinical evaluation gives the historical background, states the philosophy upon which the service is built, describes the shop and the methods employed. The statistics have been meticulously tabulated and interpreted.

The late Dr. Lawrason Brown once remarked that no physician should attempt the rôle of statistician. Dr. Siltzbach has not committed this error but has sought the aid of well known statisticians. That makes the booklet of enormous value to students of rehabilitation. It constitutes a model for those who wish to make similar surveys. Dr. Siltzbach's long connection with the program covering many years insures clinical accuracy.

The results of a quarter century should stimulate others to emulate the example of the Committee for the Care of the Jewish Tuberculous, Inc.

H. A. Pattison

Guiding the Normal Child—*By Agatha H. Bowley, Ph.D. New York: Philosophical Society,* 1943. 174 pp. Price, $3.00.

The purpose of this book is to present a brief review of the developmental patterns from birth to adolescence. The book has been written for young teachers in training, but should be useful not only to parents but to students working in the fields of pediatrics, public health, and to others who may have responsibility for the care of children. The growth and development of the child is discussed primarily from the emotional point of view, although the relationship between physical, mental, and emotional well-being is emphasized frequently in the text. In a book of this kind, each chapter is of necessity brief and pointed, but should serve to open the way to further study which will be aided by the authoritative bibliography following each chapter.

The best chapters are those dealing with young children from infancy up to the middle years. The chapter on adolescence is all too brief, but this

only serves to emphasize the inadequacy of our knowledge of this age group. Many of the suggestions on ways of helping children to develop good behavior patterns are of real practical value. The case histories, while they do lend color to the chapters, and are undoubtedly instructive, because of their brevity may give the student the impression that solution of obviously difficult problems of behavior are simple and come about quite easily when an adjustment is made. The English approach is slightly different from that used by many of our American authorities in this field, in that there appears to be less emphasis on scientific developmental data, and more on the interpretation of behavior. This book can be recommended for those who wish orientation in the field of emotional growth and development of children. It should be of special benefit to teachers and school nurses.

GEORGE M. WHEATLEY

Textbook of Physiology—*By W. D. Zoethout, Ph.D., and W. W. Tuttle, Ph.D. (8th ed.) St. Louis: Mosby,* 1943. 728 pp. Illus. Price, $4.75.

The new edition of the *Textbook of Physiology* brings this valuable book up to date and thus continues its usefulness to students and teachers of physiology. Like the earlier editions, it is written in a style suitable for students in colleges and normal schools who have had basic science courses but who for the first time are being introduced to an advanced scientific discipline.

The authors have deliberately avoided the production of the exhaustive type of book which most medical students demand, and have even further condensed the purely physiological content to make room for necessary background material from chemical, anatomical, and general biological fields. The first four chapters are, in fact, devoted almost exclusively to such fundamental topics. Throughout the book there is ample exposition of animal and human anatomy so that the discussions of functions are in correctly concrete terms.

The volume is noteworthy in a number of details, especially the figures in the text which number more than 300. They are almost invariably clear and to the point and many will be recognized by the more mature reader as classical illustrations from the literature of physiology. The index is excellent, and a large glossary of terms will be found useful by students. References to original papers are lacking, but a brief list of monographs and reviews is given.

ROBERT W. CLARKE

A National Health Service—*Presented by the Minister of Health, Department of Health for Scotland to Parliament by Command of His Majesty. New York: Macmillan,* 1944. 85 pp. Price, $.75.

Everybody should read *A National Health Service,* known as "A White Paper." It is an official document from the British Ministry of Health outlining the proposals of the Government in regard to medical and health services. The opening sentence of the introduction tells the story:

> The Government have announced that they intend to establish a comprehensive health service for everybody in the country. They want to ensure that in the future every man and woman and child can rely on getting all the advice and treatment and care which they may need in matters of personal health; that what they get shall be the best medical and other facilities available; that their getting these shall not depend on whether they can pay for them, or on any other factor irrelevant to the real need—the real need being to bring the country's full resources to bear upon reducing ill-health and promoting good health in all its citizens.

This is a breath-taking proposal. It is startling in its simplicity, in its com-

prehensiveness and in the confidence with which it is entered upon.

The White Paper contains 85 pages of rather small type, closely printed material. It goes into all pertinent phases of the subject, but, of course, not into much detail on any one of them. It outlines the present situation. It explains how it came to be that way. It describes, in somewhat general terms, the general administrative structure of the proposed national medical service with its important centralized responsibilities and its highly important local organization and services. It explains how hospitals fit into the picture; also general medical practitioners, and health services.

It gives some idea as to how it all is to be financed. There is to be no payment for services rendered. Everybody is to have an equal claim for a high grade of medical care. There is to be no compulsion about it, except in the matter of paying one's taxes. In a sense it proposes to substitute a national operating health service for a national health insurance plan for employed persons and in place of chaotic arrangements in regard to all not employed. Broadly speaking, the new plan is to be financed somewhat more than one-third from the national treasury, an equal amount from the local treasury, and the remainder, slightly more than one-quarter, from the social insurance funds. Much remains to be worked out, of course, as to the details of organization and of finance, but the British people, through their government, have put their hand to the plow and it is safe to say that the furrow will be turned.

It is really delightful to read this White Paper because of its simplicity, comprehensiveness, and straightforwardness. After being obliged to read or to hear all the yelling and yapping, squalling and squawking that we have been putting up with in talk about the Wagner-Murray-Dingle Bill (most of which talk shows no sign whatever of any knowledge of the Bill, still less of any serious estimate of its merits and demerits, and it has both), to turn to this British White Paper is like stepping out of an overcrowded, overheated, overnoisy room into the clear, cool atmosphere of out-of-doors.

HOMER FOLKS

Laboratory Methods of the United States Army—*By James Stevens Simmons, and Cleon J. Gentzkow. (5th ed.) Philadelphia: Lea & Febiger,* 1944. 823 pp. Price, $7.50.

In this fifth edition of the manual, the same sections of subject matter are included as were included in the previous edition. These sections are headed Clinical Pathology, Chemistry, Mycology, Bacteriology, Rickettsiae and Filterable Viruses, Protozoölogy, Helminthology, Entomology, Pathology, Special Veterinary Laboratory Methods, and Statistical Methods. In general an attempt has been made to include laboratory methods required by recent advances in medical practice and control of communicable diseases. Thus, for example, laboratory procedures incident to the control of sulfonamide and penicillin therapy are included.

If this volume had been intended to serve as a highly condensed outline of general methods used in the United States Army, these methods to be supplemented by more detailed textbooks and manuals, its purpose would have been achieved adequately. However, it is stated in the preface that the book is intended as "a manual describing practical methods for use in the medical and sanitary laboratories of the Army." It is the opinion of the reviewer that this book has not accomplished its stated objective and that this is due primarily to the fact that an attempt has been made to include far too much material in the space utilized. As a

result, most procedures are so limited in detail and explanation that only an expert on the particular subject could intelligently conduct the laboratory procedures without access to additional library facilities. As examples, the serological grouping of streptococci and the identification of members of the genus Shigella are dealt with too briefly to permit identification by the methods presented; the rapid identification of *Hemophilus influenza* in spinal fluids by direct typing and its satellite growth with staphylococci are not mentioned; the sections on entomology and mycology are too sketchy to be of any real value in practical laboratory investigation.

As a whole the text is relatively free from inaccuracies. However, a few definitions are presented which are not generally accepted; for example, the definition of *thallus*, page 365. The index is quite complete.

No doubt this manual should be included in the library of each large general diagnostic laboratory, but, in the opinion of the reviewer, it is not as valuable as a sole source of laboratory procedures as are other existing manuals. HERBERT C. BATSON

Education and Health of the Partially Seeing Child—*By Winifred Hathaway, Associate Director of the National Society for the Prevention of Blindness—Published for the National Society for the Prevention of Blindness, by Columbia University Press, New York*, 1943. 216 pp. Price, $2.50.

It is estimated that between 22,000 and 42,000 elementary grade children have visual deficiencies severe enough to classify them as partially seeing. The failure of school and health personnel to locate these children denies them their rightful share in the education they are entitled to under our democracy.

Three major problems associated with developing a plan for the education of the partially seeing child are: determining the children that should be selected, finding these children, and devising the means by which educational opportunities suited to the needs of these children can be made available. There is a mistaken notion that only children with refractive errors like myopia, hyperopia, and astigmatism need special educational facilities. The recommendation of this book is to consider: (1) children with visual acuity between 20/70 and 20/200 in the better eye after all medical and optical help has been provided; (2) children with serious, progressive eye difficulties; (3) children suffering from diseases of the eye or diseases of the body which seriously affect vision, e.g., measles; (4) children with eye operations that result in the need for readaptation of the eye or psychological readjustment; and (5) children with crossed eyes or other muscle anomalies.

These children may be located through periodic medical and psychological examinations if properly given. A recommended procedure for visual acuity as a screening process is included in the appendix of this book. Final diagnosis of visual deficiency is dependent upon the examination of an ophthalmologist.

Once these children are selected, it is important that they have careful educational and ophthalmological supervision. This calls for the development of special facilities, well prepared teachers, and access to medical health service.

It has been demonstrated that children handicapped by visual deficiencies are capable of achievement comparable to that of children with normal vision, *provided* educational facilities and procedures are adapted to meet their needs.

Public health workers—nurses, health officers, health educators—in their contacts with schools should find this book

helpful. Chapters on program planning, school health services, teacher selection and preparation, conducting and financing classes, preparing the classroom for the partially seeing child; teaching procedures, curriculum content, guidance, and community responsibility present basic information.

This book may be thought of as an authoritative and essential handbook and guide to all those with professional responsibility for the education, health and general welfare of children.

MABEL E. RUGEN

Statistical Reporting in Public Health Nursing—*By Margaret L. Shetland, R.N. New York: Guidance of Records Committee and Cost Analyses Committee of N.O.P.H.N.*, 1944. 56 pp. Price, $.50.

This handbook is a revision of the smaller handbook entitled "Suggestions for Statistical Reporting and Cost Computation in Public Health Nursing," which was compiled in 1937 by a subcommittee representing the Records Committee and Service Evaluation Committee of the National Organization for Public Health Nursing. This last revision was made with assistance from the Records Committee and the Cost Analyses Committee of the N.O.P.H.N.

The 1944 edition, like the earlier editions, deals with statistical reporting, not with case recording. In clear, concise terms the writer indicates the essential principles underlying an effective reporting system. A distinction is made between statistics that are generally considered to be essential for all agencies to collect regularly, and data that are more significant when tabulated for special studies.

Methods of collecting and using both types of data are suggested. Cases, visits, and other units of enumeration are defined in simple terms which should aid in eliminating much of the confusion that now exists in reporting public health nursing activities due to variations in interpreting terminology.

In describing the revised method of computing the average cost of the visit as recommended by the N.O.P.H.N., the writer points out that the Cost Analyses Committee is fully aware of the limitations which the present method presents in calculating the cost of public health nursing services because of the ever increasing number of activities other than visiting which the nurses are called upon to do. Various methods of cost computation based on other units of service are being devised, but they are not discussed in the handbook because they are as yet experimental.

The careful arrangement of the contents, with the inclusion of a selected list of references and a good index, make this handbook a useful reference book for individual public health nurses as well as a splendid guide for the use of official and nonofficial agencies in collecting and reporting essential data relating to all phases of public health nursing with increasing comparability.

The writer points out that, due to the many changes in programs necessary to meet wartime needs, some of the material in the handbook is tentative, and conclusive instructions on some phases of the work would be considered premature at this time. Encouragement is given to agencies for continuing work on problems relating to conformity in statistical reporting and more satisfactory computation of cost of services.

MARY D. FORBES

Plenty of People—*By Warren S. Thompson. Lancaster, Pa.: Jacques Cattell Press*, 1944. 246 pp. Price, $2.50.

This is a valuable discussion of the population problem by a leader in the field. It is neither an exhaustive nor a technical treatise. That the author

produced in 1942 in his volume entitled "Population Problems." The fifteen chapters cover such subjects as the growth of population since 1800, the birth rate, the factors in the decline of the birth rate, the death rate, war and population growth, the future population of nations, political and economic implications of differential national growth, the distribution of population, migration, effects of age changes, social and economic effects of the slower growth of populations, the biological fitness of the people, minorities and population policies, with especial reference to a population policy for the United States. Together, they provide a readable summary to orient the lay reader in the essentials of the population problem.

It is an attractive feature of this volume that it highlights the significance of population changes for human welfare. Until recently, this field had little or no interest for the American public. There seemed to be no particular need for an American population policy. Our population increased rapidly; our resources were ample and we had no quarrels with other nations. The scene has shifted, however, and population questions have become a pressing concern for intelligent people in our country. This book should help those who want to know what is happening, not only here but throughout the world, in terms of numbers of people, their relation to natural resources, changes that are going on, and how all of this affects national welfare and future relations between nations.

Professor Thompson is well qualified to discuss these problems. He has approached his task not only with the expert knowledge of the demographer but also with the matured judgment and the wise social philosophy of the trained economist and sociologist. Workers in the field of public health will find much of value in this little book and will be grateful to the author for pointing out the significance of their work in the larger field of international relations.

THOMAS D. DUBLIN

The Road to Safety Series—*By Buckley, White, Adams, Silvernale (rev. ed.). New York: American Book Company,* 1943.

A. Away We Go,	$.28
B. Happy Times,	.80
C. In Storm and Sunshine,	.84
D. In Town and Country,	.88
E. Here and There,	.92
F. Around the Year,	.96
G. On Land and Water,	1.00
H. Who Travels There?	1.04

The Road to Safety is a revised series of eight books intended to combine good reading practices with effective safety instruction. The stories have been adapted from well known books and magazines. The material is based on safety and graded from the standpoint of reading ability from preprimer to the 6th grade.

The following safety subjects are covered in each book and presented in a different form to fit the needs of each specific age group:

School Safety
Fire Prevention
Street Safety and Travel
Home Safety
Winter Safety
First Aid
Safety Out of Doors
Vacation Safety

Numerous illustrations accompany the text.

Each book is meant to be used with a corresponding Workbook: questions and answers, sentence completion, coloring pictures, matching exercises, etc., are designed to provide a more thorough understanding of the stories read and the conceptions gained.

The series also includes three Teacher's Manuals which contain bibliographies of material for story telling

and additional reading matter, dramatizations, library activities, aids in teaching phonetics and in planning safety activities, etc.

The approach to the teaching of safety throughout the series is a positive one and mostly indirect. True courage and the desire for good adventures are fostered, while fear and gruesomeness are left out. The authors have prepared the material to meet the needs of children for safety education throughout the entire nation, whether living in large cities, small towns, or rural communities. While the material is used during the reading periods, the subject matter at the same time introduces the children to safe habits and attitudes, knowledge and skills, thus combining reading practice and safety education without adding another subject to the curriculum.

In selecting the presented reading material the authors utilized their experiences gathered over a period of years in Cleveland Schools (Ohio). These were the results of studies which not only dealt with the reading needs of pupils, but also included analyses of thousands of child accident reports.

The books are not numbered according to grade, but lettered from A to H, which suggests a certain amount of flexibility as to their use for certain age groups. HERBERT J. STACK

Contagious Diseases—*By W. W. Bauer. (2nd rev. ed.) New York: Knopf*, 1944. 188 pp. Price, $2.50.

"Modern methods for the control of communicable disease and the prevention of epidemics are available and should be used to the greatest possible extent. It is only when parents understand what these measures are and how to use them that their effectiveness can be fully realized."

This statement appears as the theme which runs through Dr. Bauer's excellent little book. It is a book for intelligent parents. There is discussion of the bacteriology and immunology of the common communicable diseases in terms that the layman can understand, and there is explanation of the household and community procedures used to break the chain of transmission of disease.

Bacteriology, control procedures, home nursing, and then specific illnesses are covered in individual chapters. Much excellent information is presented; much common misinformation is corrected. Health workers can learn something about presentation of information to lay groups by reading this book. Some health departments will wish that their regulations were more in line with existing knowledge after parents in their jurisdictions have digested the book's contents.

This guide for parents is carefully written, is scientifically accurate, and is in understandable language. It will soon find a useful place for itself.

WENDELL R. AMES

Osler's Principles and Practice of Medicine—*By Henry A. Christian. (15th ed.) New York: Appleton-Century*, 1944. 1498 pp. Price, $9.50.

The tradition of this recognized textbook of medicine has been maintained in this 15th edition. This new revision, appearing within 18 months of the previous one, brings the information in the textbook up to date and includes many recent developments, particularly from the point of view of the requirements of the medical personnel of the Armed Forces. In this connection the inclusion of recommendations from the Office of the Surgeon General of the United States Army concerning diseases of military importance is extremely valuable. Particular attention has been given to the present status of tropical diseases and other diseases of importance in the military effort.

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It is too easy in evaluating a work as

extensive as this to find omissions and defects, but certain of these are worth comment. Since this edition is particularly directed toward use by medical personnel of the Armed Forces, the lack of reference to homologous serum jaundice is a striking omission, and the section on war gases contains little specific information. The recommendations for immunization against diphtheria and pertussis are not in accord with modern public health practice. The indication that sulfapyridine is the drug of choice for the treatment of Friedlaender's bacillus infections should be corrected. The references to source material are more numerous in this edition than in previous ones, but still are not adequate for the needs of the practising physician.

The textbook presents the current basic facts of internal medicine in simple, readable style and in excellent format. It will provide orientation to physicians desiring to keep up to date in medicine. DAVID D. RUTSTEIN

BOOKS RECEIVED

AN INTRODUCTION TO PUBLIC HEALTH. By Harry Stoll Mustard. 2nd ed. New York: Macmillan, 1944. 283 pp. Price, $3.25.

VITAMINS AND HORMONES. ADVANCES IN RESEARCH AND APPLICATIONS. Edited by Robert S. Harris and Kenneth V. Thimann. Vol. II. New York: Academic Press, 1944. 514 pp. Price, $6.80.

VITAL STATISTICS AND PUBLIC HEALTH WORK IN THE TROPICS. By Granville Edge. Baltimore: Williams & Wilkins, 1944. 188 pp. Price, $5.00.

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THE DRINKER AND THE DRUNKARD. Lay Supplement No. 10. 16 pp. Price, $.10. HOW ALCOHOL AFFECTS PSYCHOLOGICAL BEHAVIOR. Lay Supplement No. 11. 15 pp. Price, $.10. THE REHABILITATION OF INEBRIATES. Lay Supplement No. 12. 14 pp. Price, $.10. Prepared and issued by the Quarterly Journal of Studies on Alcohol, New Haven, Conn., 1944.

MORALE IN INDUSTRY AS SEEN BY A NEUROPSYCHIATRIST. By Meyer Brown. Chicago (135 LaSalle Street): Industrial Welfare Department, Zurich Insurance Companies, 1944. Free from publisher. 31 pp.

EMOTIONAL HYGIENE: THE ART OF UNDERSTANDING. By Camilla M. Anderson. 3rd ed. Philadelphia: Lippincott, 1943. 253 pp. Price, $2.00.

COMMUNITY SERVICES FOR VETERANS. A GUIDE FOR PLANNING AND COÖRDINATION. By National Committee on Service to Veterans. New York: National Social Work Council, 1944. 19 pp. Price, $.10.

POSTWAR PLANNING IN THE UNITED STATES, 3. An Organization Directory. New York: Twentieth Century Fund, 1944. 134 pp. Price, $1.00.

REPORT OF THE INCIDENCE OF RICKETS IN WAR-TIME. Code No. 32–195–92. By The British Paediatric Association. New York: British Information Service, 1944. 36 pp. Price, $.25.

AEROBIC, NON-SPORING, EXCRETAL BACTERIA. A Synoptical Table of Biochemical Characters arranged in terms of manipulative procedure. By Arthur Compton. Egypt: Societe de Medicine et D' Hygiene Tropicales d' Egypte, 1943. 28 pp.

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

When the Lines Cross—In 1909 tuberculosis stood first and diabetes sixteenth in rank among the causes of death. Today the relative standing is seventh and ninth. In some states the curves have crossed. Herein lies the text for a dozen sermons on public or private health.

ANON. Diabetes and Tuberculosis—A Comparison. Stat. Bull., Met. Life Ins. Co. 25, 6:3 (June), 1944.

Potpourri—This fast running blow-by-blow account of many comments on recent changes in the school health program, in which almost every variety of specialist and Dorothy Nyswander take part, is worth your while. Nothing significant could be said about it in this brief note.

ANON. The Changing School Health Program. Pub. Health Nurs. 36, 9:478 (Sept.), 1944.

Once It Was Constipation or Sluggish Liver—Though this is a medical paper there are two signs-of-the-times sentences in it which deserve to be preserved in the annals of public hygiene. "In the minds of the public, lack of energy tends today to mean lack of vitamins. Our experience lends no support to the theory that vitamin deficiency seriously affects the health of a large percentage of the population."

ALLAN, F. N. The Differential Diagnosis of Weakness and Fatigue. New England J. Med. 231, 12:414 (Sept. 21), 1944.

About Detergents, Bactericides and Washers—Recommended methods for restaurant dish washing are described in detail. Experience shows, says the writer, that health officials will achieve better results by persuasion than policing. Dish washers will wash with a better will if they know the reasons than if they hear threats only. Training courses are recommended.

ANDREWS, J. Methods of Sanitizing Eating and Drinking Utensils. Pub. Health Rep. 59, 34:1103 (Aug. 25), 1944.

There's Nothing Like a Snappy Title—You will discover here a lot of information about the eyes of the Okies (and others). There is one item which should be paraded before deluded believers in racial superiorities: in all ages, Negroes were found to have less defective vision than whites.

GOVER, M., and YAUKEY, J. B. Physical Impairments of Members of Low-Income Farm Families—11,490 Persons in 2,477 Farm Security Administration Borrower Families, 1940. I. Characteristics of the Examined Population. II. Defective Vision as Determined by the Snellen Test and Other Chronic Eye Conditions. Pub. Health Rep. 59, 36:1163 (Sept. 8), 1944.

Human Reclamation—To the British Isles has fallen the honor of most of the pioneer work in rehabilitation says this writer. Among the many pre-war establishments for the rehabilitation of the disabled, was Letherhead Cripple's Training College (a dreadful name if ever I saw one), but it was the war that put this human reclamation project on the map. There are three schools of thought about the subject which will interest American rehabilitators: to them I commend the paper.

GRIFFITHS, H. E. Rehabilitation. J. Roy. Inst. Pub. Health & Hyg. 7, 9:225 (Sept.), 1944.

Prophylactic Values in Sulfa Drugs—Among young men in military training camps it was found that daily

doses of 1 gram of sulfadiazine resulted in a 50–75 per cent reduction in incidence of respiratory and streptococcic infection. It appears that the reduction in rheumatic fever parallels the respiratory diseases.

HOLBROOK, W. P. The Army Air Forces Rheumatic Fever Control Program, (and) COBURN, A. F. The Prevention of Respiratory Tract Bacterial Infections. J. A. M. A. 126, 2:84 (Sept. 9), 1944.

Last Look at the Late Flu Epidemic—After reviewing the statistics, the writers conclude that the 1943–1944 winter outbreak of influenza was larger than any epidemic since 1928–1929, but caused only 8 per cent as many excess deaths as did the 1918 pandemic.

HOLLAND, D. F., and COLLINS, S. D. The Influenza Epidemic of the Winter of 1943–44. In the United States: A Preliminary Summary. Pub. Health Rep. 59, 35:1131 (Sept. 1), 1944.

A Plan That Has Started to Roll—Here's a new story of an Ohio county school health committee which approved and put into use an individual student cumulative health record and a lot of other measures to improve the school health program. Then local committees were found necessary. What the first of these did in its initial meetings is recounted. This seems to be an important paper.

KERR, L. E. Coördinating Health Education. Pub. Health Nurs. 36, 9:463 (Sept.), 1944.

And the Sanitary Facilities Were Poor, Too—In a survey of small industries in the lower East Side of New York these arresting statistics were unearthed: none of the plants with less than 250 employees had nursing services while 64 per cent of those employing more than 250 had full-time nursing care. Only 88 per cent of all plants had medical services of any kind.

KRESKY, B., and ROSENTHAL, T. A Survey of Medical and Sanitary Facilities in Small Industrial Establishments. J. Indust. Hyg. & Toxicol. 26, 6:201 (June), 1944.

Your Beetle-Browed Attention, Please!—Syphilis being the treacherous kind of disease it is, we must wait for the final answer, but penicillin now seems to be it. Penicillin has a profound effect in early syphilis on disappearance of organisms, healing of lesions, and serological reversal. In late syphilis, also, the apparent results are much too good to be entirely true.

As you must be aware by now, the object of this bibliography is to cajole, inveigle, or otherwise to seduce you to hunt out and ponder over the papers here annotated. Well, if the poor, inadequate paragraph above, sends you to these undoubted papers-of-the-month, then all the reams of good white pulp used upon this section during the past two decades may not have been totally wasted.

MAHONEY, J. F., *et al.* Penicillin Treatment of Early Syphilis, MOORE, J. E., *et al* The Treatment of Early Syphilis With Penicillin, (and) STOKES, J. H., *et al.* The Action of Penicillin in Late Syphilis. J. A. M. A. 126, 2:63 (Sept. 9), 1944.

Heresy—Concludes the writer in these words: it probably accounts for the ability of you and me to eschew with impunity such protective foods as milk and spinach, if we don't like them. It is an important phase of man's capacity to survive and thrive in all regions of the earth. The definition of "it" you will find in the title below.

MITCHELL, H. H. Adaptation to Under-Nutrition. J. Am. Dietet. A. 20, 8:511 (Sept.), 1944.

Contemporaries of "Dem Bums"—You really should read this account of the program of wide-awake industrial health committees, so I shall say nothing here that might sate your appetite for the news.

SHOSTAC, P. An Industrial Health Com-

mittee Grows in Brooklyn. Channels. 22, 1:1 (Sept.), 1944.

What about Your Department?—Arguments are marshalled here to support the thesis that a campaign to prevent malnutrition is a legitimate function of a local health department, and that the division of nutrition should act as the centralizing agency for the better nourishment of the people.

SMITH, H. H. Nutrition and Public Health. Nutrition Abstr. & Rev. 2, 9:257 (Sept.), 1944.

Bearing the Stigma of "Crack Pot"—Psychiatric examinations of selectees demonstrate an alarming amount of ill health in our communities, and makes obvious the need for comprehensive mental hygiene programs: say these competent commentators.

WAGGONER, R. W., *et al.* Psychiatric Selection of Men for the Armed Forces. J. A. M. A. 126, 4:221 (Sept. 23), 1944.

You Take Your Choice—Nontuberculous inmates of a mental hospital were vaccinated against tuberculosis and compared with a control group. The findings support the thesis that a heat-killed, tubercle bacillus vaccine has some protective value and might be used by those who are subjected to unusual risks of tuberculosis infection. To confuse the innocent bystander a companion paper reports that the vaccine used in a free population was not attended by significant results.

WELLS, C. W., *et al.* Results Obtained in Man with the Use of a Vaccine of Heat-Killed Tubercle Bacilli.. Am. J. Hyg. 40, 2:116 (Sept.), 1944.

ASSOCIATION NEWS

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Sedgwick Memorial Medal for 1944 Awarded to Dr. E. W. Goodpasture

THE award was made on October 3, 1944, during the Seventy-third Annual Meeting of the American Public Health Association in New York, N. Y., by Dr. C.-E. A. Winslow, Chairman of the Sedgwick Memorial Medal Committee. In presenting the medal, Dr. Winslow said:

ERNEST W. GOODPASTURE, M.D.

"One of the peculiar charms of public health lies in the breadth of its scope and the diversity of the brotherhood enlisted in its service. The Sedgwick Medal has been awarded in recent years to administrators, teachers, bacteriologists, epidemiologists. Leaders in engineering, in vital statistics, and other areas of public health will no doubt be recognized in the future.

"Tonight, as when we honored Smith and Park, Jordan and Zinsser, we crown achievements in the basic fields of laboratory research which underlie as a sure foundation all our machinery of health administration.

"Ernest William Goodpasture is a pathologist—the first representative of that field except Theobald Smith to receive the Sedgwick Medal. He was born at Clarksville, Tenn., in 1886; received his B.A. degree at Vanderbilt in 1907, and his M.D. at Johns Hopkins in 1912. He is an honorary Master

SEDGWICK MEMORIAL MEDAL
AWARDED TO
BY THE AMERICAN PUBLIC HEALTH ASSOCIATION FOR DISTINGUISHED SERVICE IN PUBLIC HEALTH

SEDGWICK MEMORIAL MEDAL

of Science (Yale) and Doctor of Science (Chicago). Dr. Goodpasture began his career in pathology at the Hopkins (1912–1915) and at the Peter Bent Brigham and Harvard (1915–1921). He obtained valuable experience as Chief of the Department of Pathology and Bacteriology at the University of the Philippines (1922) and at the Singer Memorial Research Laboratory of Pittsburgh (1922–1924). He studied as a Rockefeller fellow in Vienna in 1924–1925; and since 1925 has been Professor of Pathology at Vanderbilt.

"Dr. Goodpasture is a member of the National Academy of Sciences; and has been Research Medallist of the Southern Medical Association (1937); President of the American Society of Experimental Pathologists (1939); Vice-President of the A.A.A.S. (1940); and he received the Kober Medal of the Association of American Physicians in May of the present year.

"Dr. Goodpasture is an outstanding teacher of pathology and, through his pupils as well as through his own direct contacts, has exerted a notable influence on the teaching of this fundamental branch of medical science. He developed new methods of staining the inclusion bodies apparent in many virus diseases; and, in general, the results of his investigations on vaccinia, on poliomyelitis, on foulpox, on molluscum contagiosum, on rabies, on herpes, on influenza, have been of primary significance in revealing the secrets of our virus enemies and in making possible our defenses against their ravages.

"As one example of the influence of Goodpasture's researches we may cite his studies on mumps which (as carried forward by Enders and Cohen) make it possible to separate those who are immune to this disease from those who are susceptible in any human population and to recognize hitherto inapparent infections—points of very great practical importance in administrative control.

"Even more far-reaching in its effects has been Goodpasture's work on vaccinia in the developing chick and on the cultivation of viruses and rickettsiae in the hen's egg, which laid a cornerstone of our knowledge in regard to the cultivation of viruses. It has proved of primary importance in the preparation of vaccines against the various forms of typhus fevers and yellow fever. The Army has recently ordered 50 million eggs for the manufacture of influenza vaccine, an experiment in

global epidemiology of major significance for which Goodpasture paved the way in his laboratories at Vanderbilt.

"There could be no better example of the farflung influence of laboratory research in the field of public health. It is an episode which would have stirred the imagination of William Thompson Sedgwick, whose work on the microbiology of water and milk and ice and air laid similar laboratory foundations for administrative procedures half a century ago.

"It is a privilege for the American Public Health Association to confer its highest honor on Ernest William Goodpasture."

In accepting the award Dr. Goodpasture made the following reply:

"It is a blessing when on rare occasions personalities arise in our midst who, because of their peculiar gifts of character and accomplishment, are representative and symbolic to us of our ideals. For students and devotees of the principles and practice of public health in America, William Thompson Sedgwick was such a man. That I am permitted on this occasion to acknowledge with you his spiritual leadership is a privilege and an honor I treasure most highly.

"Although I was working in Boston at the height of his career at the Massachusetts Institute of Technology, I missed the privilege of contact with him. Nevertheless I was aware of the impact of his influence and his preëminence.

"One of the qualities such men have in high degree I believe, is the quality of vision, inspiring faith. Dr. Sedgwick was a pioneer and as a pioneer his work was not supported by a full realization of its potentialities, but by a knowledge of the needs of his time and a faith in himself, in his students, and in his methods to accomplish a revolutionary epoch in the preservation of health.

"Today we can appreciate fully the wisdom of his foresight and be witnesses ourselves to the genuineness of his prescience and the effectiveness of his labors as teacher and as investigator.

"Indeed, in a brief span of years we have built a civilization for the integrity and survival of whose structure the application of the principles and technics advocated, devised, and practised by him and by the membership of this Association are no longer merely desirable, but essential.

"In accepting this Medal, I do so with a profound respect for the objectives of the Association: to keep ever refreshed the memory of a great man and master, to disseminate his inspiration, to join honor with responsibility in the service of our people. In honoring me you would recognize also my colleagues and the innumerable contributors to the science and practice of public health everywhere.

"For them as well as for myself I will treasure it as an expression of your approval and esteem, and, with the life of Dr. Sedgwick for an example, as a perennial commission to the service of humanity."

A.P.H.A. ADOPTS STATEMENT ON MEDICAL CARE IN A NATIONAL HEALTH PROGRAM

The Governing Council of the American Public Health Association at the 73rd Annual Meeting, recently concluded in New York City, gave extended consideration to the preliminary report on a national program for medical care published in the September, 1944, *Journal*, pages 984–988.

This report subsequent to its publication came before the Committee on Administrative Practice and was recommended with some editorial changes to the Governing Council for adoption. The discussion before the Governing Council brought out the statement of those in favor of the report and those opposed, and it was held over for 48

hours to permit full consideration and the preparation of a definitive report which then passed the Governing Council by a vote of 49 in favor, 14 against.

The report as adopted will appear in the December *American Journal of Public Health*. In the meantime persons desiring copies may obtain them by application to the Executive Secretary.

MILK LABORATORY SURVEY FORMS NOW AVAILABLE FROM A.P.H.A.

For everyone interested in plate counts of milk and milk products there is now available a handy form for checking the procedures used in making Standard plate counts against those recommended in the latest (eighth) edition of *Standard Methods for the Examination of Dairy Products*. Printed on both sides of a single sheet, the form covers the essential details of apparatus, preparation, and technics, which occupy 26 pages in *Standard Methods*.

The form was originally prepared by the U. S. Public Health Service for use in surveying milk laboratories throughout the country. It was considered so valuable by the Standard Methods Committee that it has been published by the A.P.H.A. for sale and for free distribution with copies of the third reprinting of the eighth edition of *Standard Methods*. The price is $1.00 for 50 copies, $1.50 for 100 copies, or $10.00 for 1,000 copies. Sample copies may be obtained without charge.

The form should be of value to administrators in improving the work of laboratories in their jurisdiction, to the bacteriologist and the technician as a guide in their work, and to those training new workers or teaching students in bacteriology, dairying, or public health.

DEATH OF MRS. KATHERINE ANDRUS

The members and Fellows of the Association who for years have dealt with the Central Office will learn with regret of the passing on September 23 of Mrs. Katherine P. Andrus who, since 1922, has been employed by the Association as Chief Clerk, and lately as Librarian. Her many years of faithful direction of the Book Service and other Association responsibilities were recognized by the Executive Board in a recent resolution.

APPLICANTS FOR MEMBERSHIP

The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.

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Silas T. Tygart, 1448 LeBaron Ave., Jacksonville 7, Fla., Interested Citizen
Kenneth M. Watson, 1517 Pinemont Drive, Columbia 58, S. C., Interested Citizen
Daniel L. Wheeler, 1301 Queens Road West, Charlotte, N. C., Interested Citizen

DECEASED MEMBERS

Samuel M. Ellsworth, Boston, Mass., Elected Member 1939, Elected Fellow 1943, Engineering Section
Israel J. Kligler, Ph.D., Jerusalem, Palestine, Elected Member 1912, Charter Fellow, Laboratory Section
Lillian A. Phelps, Oneonta, N. Y., Elected Member 1943, Public Health Education Section

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VISITORS FROM MEXICO AT THE NEW YORK MEETING

Among the visitors from Mexico at the 73rd Annual Meeting of the Association in New York City were Dr. Manuel Márquez Escobedo, Director of the Training Station and Health District and Assistant Professor of Tropical Medicine in the School of Public Health and Hygiene, Mexico City. With Dr. Escobedo was Dr. Felipe García Sánchez, Medical Director of the Division of Hygiene and Welfare.

JOURNALS WANTED

The A.P.H.A. headquarters has exhausted its supply of February, June, and August issues of the JOURNAL. Members who can spare any or all of these issues are requested to send them (collect) to the A.P.H.A. at 1790 Broadway, New York 19, N. Y.

EMPLOYMENT SERVICE

The Association Employment Service seeks to bring to the attention of appointing officers the names of qualified public health personnel and to act as a clearinghouse on employment. This is a service of the Association conducted without expense to the employer or employee.

From the registry of persons available, selected announcements are published from time to time. Appointing officers may obtain lists of all registrants on request.

Address all correspondence to the Employment Service, American Public Health Association, 1790 Broadway, New York 19, N. Y.

POSITIONS AVAILABLE

STATE OF WASHINGTON DEPARTMENT OF HEALTH ANNOUNCES THE FOLLOWING OPENINGS:

Physician as obstetric consultant in Washington State Department of Health. Preferably with 3 years' special residency in obstetrics and gynecology. Salary $5,280 to $6,000 per annum.

Sanitarian. Preferably with public health training and experience. Salary $2,290 to $2,640.

Bacteriologist to take complete charge of local health laboratory. Requirements include college graduation with major in bacteriology and at least one year of employment in a public health laboratory. Salary $190 to $220 per month.

Physician as health officer in county health department in Northwest. Previous public health experience preferable. Entrance salary $440 per month. Permanent position.

Address Lee Powers, M.D., State Director of Health, 1412 Smith Tower, Seattle, Wash.

Wanted: County Public Health Nurse for midwestern state. Present salary $160 per month and travel allowance. Must have had previous experience in public health. Own and drive car. Address District Health Unit 2, West Branch, Mich.

Physician—public health pediatrics. To assist director of maternal and child health in a large California County Health Department. Major duties, conducting of infant and preschool health conferences and school examinations. Beginning salary $390 a month and travel allowance. California license required. Training and experience in pediatrics or public health or both. Immediately available. Address William C. Buss, M.D., Kern County Health Dept., Bakersfield, Calif.

Wanted: Physician with tuberculosis training to direct Tuberculosis Division of Milwaukee Health Dept. Salary $4,200 per year plus cost of living wage adjustment. If interested contact Dr. G. F. Burgardt, Milwaukee Health Dept., Milwaukee, Wis.

Southern Wisconsin county announces position now open for supervising public health nurse. Office is located in city containing state capitol and university. Staff consists of two nurses. Requirements are degree of bachelor of science in public health nursing, 2 or 3 years' experience as staff nurse, some experience as supervising nurse. Must be eligible for certification as public health nurse in Wisconsin. Beginning salary $185. Write **Box Z,** Employment Service, A.P.H.A.

Wanted: Physician in eastern city of 190,000 population as Director of Bureau of Maternal & Child Hygiene. Salary $4,500–$5,031 plus cost of living adjustment. **Box U,** Employment Service, A.P.H.A.

Wanted: Two full-time public health nurses. Salary to start $165 plus $15 War Bonus per month. Car mileage paid at rate of 5¢ per mile. Write **Box Q,** Employment Service, A.P.H.A.

Wanted: Superintendent and Medical Director for tuberculosis sanatorium having 65 bed capacity and average of 35 patients per day. Salary $4,380 with $300 annual allowance for car. Write M. P. Hunter, City Manager, Roanoke, Va.

Wanted: Industrial hygienist to conduct surveys of industrial plants for large insurance company with complete laboratory facilities and field testing equipment. This is an excellent opportunity for a permanent, not a war period, position. State age, family status, education, experience, qualifications, and minimum salary. Write **Box O,** Employment Service, A.P.H.A.

Wanted: Staff nurses for 200 bed municipal tuberculosis hospital. Salary $190 per month, $35 per month deduction if maintenance desired. Educational program with opportunity for postgraduate work with University credit

planned. For full information write Superintendent of Nurses, Firland Sanatorium, Richmond Highlands, Wash.

Wanted: Health officer for County-City health unit. Good opportunity for right man. Salary to start $4,500 per year and travel expenses. Position permanent. Address G. F. Campana, M.D., Acting State Health Officer, Bismarck, N. D.

Wanted: Assistant bacteriologist needed for modern public health laboratory in southeastern city of 70,000 population. Available salary of $1,800 increasing to $2,000 if satisfactory service shown. Write **Box N,** Employment Service, A.P.H.A.

Wanted: School dentist to direct and operate school dental program in southeastern city of 70,000 population. Salary starting $3,600 and increasing to $4,000 for satisfactory service. Write **Box Y,** Employment Service, A.P.H.A.

Wanted: Health Educator, preferably unmarried man with experience in venereal disease control. Work chiefly in suburban areas. Some evening work. Good salary with very generous travel allowance. Position under Civil Service with annual increases in salary. Address Venereal Disease Division, Wayne County Health Dept., 5716 Schaefer Rd., Dearborn, Mich.

Wanted: Public health nurse for staff work on a generalized program. Private agency, 45 hour week. Location 30 miles from New York City. Salary first year, $1,859.54; second year, $2,009.54; maximum salary $2,217.60. Transportation supplied, 24 working days' vacation annually. Write **Box V,** Employment Service, A.P.H.A.

Wanted: Director of Maternal and Child Health for Santa Barbara County Health Department. Salary $4,500 per year, all expenses furnished. Write Dr. L. C. Newton Wayland, Santa Barbara Co. Health Dept., Santa Barbara, Calif.

Wanted: Bacteriologist to take full charge of New Jersey Municipal Health Department Laboratory in community of approximately 40,000. Must be qualified to carry out all procedures of clinical, food, and sanitary bacteriology. Salary $1,980–$2,400 per year. Permanent appointment subject to civil service examination. Write **Box L,** Employment Service, A.P.H.A.

Wanted: Assistant in Health Division Council of Social Agencies, interested in community organization and health education. Large city and metropolitan area. State age, training and experience. Write **Box X,** Employment Service, A.P.H.A.

Wanted: Bacteriologist, preferably with public health laboratory experience, to supervise milk and ice cream plant laboratory. Must be familiar with dairy chemistry. Good opportunity for advancement and remuneration. Salary range from $160 monthly. Write W. H. Krehl, P. O. Box 4217, Jacksonville 1, Fla., stating education, training and references.

Michigan announces several desirable openings in positions for healh directors in county, district, and city health departments. Salary ranges from $3,000 to $6,000 with travel allowances. Write Director, Bureau of Local Health Services, Michigan Department of Health, Lansing 4, Mich.

New Mexico Department of Public Health offers unusual opportunities for employment. Positions: Director of Maternal and Child Health, Director of Public Health Nursing, Public Health Nursing Consultant, Public Health Nurse-Midwife Consultant, Public Health Nurse-Midwife, Public Health Nurse, Emergency War Nurse and Field Nutritionist. Salary ranges $135 to $500. Also, Senior Bacteriologist-Serologist, Emergency War Bacteriologist-Serologist, Supervisor of Laboratory Maintenance, Senior Assistant Bacteriologist-Serologist, Emergency War Assistant Bacteriologist-Serologist, Junior Bacteriologist-Serologist. Salary ranges $115 to $225. Closing date for applications November 30, 1944. For application blanks and information write New Mexico Merit System, Box 939, Santa Fe, N. M.

Wanted: Assistant health officer. Must be able to diagnose communicable diseases, conduct well baby conferences, give immunizations, etc., in adequately financed health department. Salary $325 per month plus mileage. Write Box R, Employment Service, A.P.H.A.

Wanted: Experienced, aggressive sanitary engineer for well organized county health deparment in Michigan. Salary $3,000 and travelling expense. Write **Box S,** Employment Service, A.P.H.A.

FOR OTHER POSITIONS AVAILABLE WRITE EMPLOYMENT SERVICE, AMERICAN PUBLIC HEALTH ASSOCIATION, 1790 BROADWAY, NEW YORK 19, N. Y.

In view of the current active demand for trained and experienced persons in public health, it is suggested that prospective employers communicate directly with the Employment Service, American Public Health Association, 1790 Broadway, New York 19, N. Y., for up-to-date lists of applicants.

POSITIONS WANTED

Administrative

Physician, age 56, with 16 years' uninterrupted experience as county health officer, desires position in public health work, preferably southern. Licensed in So. Carolina and Maryland. Best of references. **A-512.**

Engineer

Well qualified public health engineer seeks responsible position in New York metropolitan area. **E-480**

Sanitary Engineer, C.E. 22 years' experience as sanitary engineer, 14 as director in state health department, now employed. Desires change. Location immaterial. **E-481**

Health Education

Woman with background of nursing administration and health education seeks position in health education field. **H-509**

Man, **Ph.D. in health education,** with 20 years' successful experience in large school of nursing in Metropolitan New York area seeks additional affiliation in same area. **H-510.**

Laboratory

Research bacteriologist - veterinarian, now in civil service, desires change to direct or indirect war work. P-3 classification. Considerable laboratory and field experience. Used to foreign travel; will go anywhere. Steady hard worker. **L-470**

Bacteriologist-biologist, experienced in antibiotics, sulfonamides, food, water, pharmaceutical and public health problems. Equipped to conduct research, test and develop new products. Desires placement in New York area. **L-471.**

Statistics

Woman with background of statistics and epidemiology involving administration seeks position in statistical administration. Salary $3,500 or over. **S-460**

Miscellaneous

Sanitarian-Veterinarian, age 23, seeks employment in public health field. Experienced as veterinarian, serologist, sanitary inspection. **M-460**

Advertisement

Opportunities Available

WANTED—(a) Public health physician to direct department of health, public school system; enrollment of 25,000; 800 employees; well staffed department including assistant physicians, dentist, nurses, technicians, etc. (b) Public health physician to head state service; duties including directing crippled children's program, adult physical rehabilitation program; South; salary $5,000 plus traveling expenses and subsistence when in the field. (c) Public health physician to head department in city of 65,000; staff of 12; possibility of combining city and county units; West. (d) Director, student health department; duties consist of charge of 50 bed infirmary and responsibility of health service to 1,700 civilian students and 300 army trainees; no surgery; Pacific Coast; $5,000–$6,000. (e) Student health appointment; young women's college; approximately 2,000 students; new, well equipped infirmary, large dispensary; staff of five physicians; nine graduate nurses; East. (f) Physician to operate municipal health clinic for treatment of syphilis; duties include conducting prenatal and well-baby clinics; South. (g) Associate professors or instructors in public health and industrial medicine; university medical school; Middle West. **PH–10–1**, The Medical Bureau (M. Burneice Larson, Director), Palmolive Building, Chicago, Illinois.

WANTED—(a) Director of public health nursing; duties consist of supervisory and administrative work; New York. (b) School nurse, to direct health service in large high school; duties include teaching periods in Home Nursing and Health; Middle West. (c) School nurse; to supervise staff of seven nurses; public schools, town of 75,000 located short distances from several large cities; will have school assignment of own; year-round appointment. (d) Industrial health counselor; organization having approximately 3,000 employees; duties would consist of investigating illnesses causing absenteeism, serving as counselor, and directing student health program generally; B.S. degree in social sciences advantageous, or training in public health nursing, candidate without degree eligible, however, salary in accordance. (e) Several industrial nurses; newly-created medical department, large industrial company; excellent opportunities for advancement; $300. (f) Public health nurse to supervise corps of public health nurses; new program; interesting project. (g) School nurses; public health certificates required; cars unnecessary but advantageous; generalized program; large city, Pacific Northwest. (h) College nurse; East. **PH–10–2**, The Medical Bureau (M. Burneice Larson, Director), Palmolive Building, Chicago, Ill.

Situation Wanted

DENTIST recently retired as lieutenant colonel from dental corps of armed forces is available; D.D.S., A.B., and M.S. from leading schools; experience includes several years as chief of dental service, large institution, and twelve years' private practice limited to diagnosis and oral surgery; some teaching experience. **PH–10–3**, The Medical Bureau (M. Burneice Larson, Director), Palmolive Building, Chicago, Ill.

NEWS FROM THE FIELD

A SUGGESTED "KEEP FIT" PROGRAM

The Joint Committee on Physical Fitness of the National Committee on Physical Fitness of the American Medical Association has requested the JOURNAL to reprint the attached suggested "Keep Fit" program for schools and colleges of America. Colonel Leonard G. Rowntree, MC, AUS, is Chairman of the Joint Committee which functions under the Federal Security Agency, Washington.

The schools and colleges of America have contributed greatly to the health and fitness of young Americans, but even greater effort is needed if their contribution is to attain a level commensurate with their opportunities and responsibilities to their pupils and their communities.

The following recommendations are proposed to help schools and colleges to define more clearly their responsibilities and to help them to attain these goals:

I. It is recommended that the following objectives be proposed to schools as minimum requirements of their programs in health and physical education—

1. Thorough physical examination of all children (a) on or before admission to school and at such regular intervals thereafter as may be deemed advisable; (b) on readmission to school following any major illness; (c) on teacher referral when the pupil's appearance, performance, or routine screening test records suggest failing health or defects. Whenever possible the parent or teacher should attend the examination of younger children.
2. Daily teacher inspection of all pupils for signs of deviation from normal health status.
3. Routine screening tests to discover defects of vision and hearing and failure to grow.
4. At least annual, preferably semiannual, dental attention for every pupil.
5. An annual inventory of the physical abilities of every pupil by teachers of physical education.
6. Suitable follow-up work to assure (a) the correction of correctible defects and the prevention of preventable conditions, and (b) the assignment of pupils to modified activities programs where this is needed.
7. The use of a cumulative record blank designed to follow the child throughout its school life and to record (a) the results of physical examinations, screening tests, and physical fitness inventories, and (b) the dates of major illnesses, immunizations, dental visits and corrective measures taken.
8. Organized health instruction on all school levels and planned healthful living throughout the school experience. At elementary levels this may be undertaken as a part of larger projects. At secondary levels there is need, in addition, for instruction specifically devoted to this area. This should not be as a "rainy day" substitute for or otherwise at the expense of physical education. Irrespective of title or departmental affiliation such instruction must develop accurate knowledge, appropriate attitudes, and sound habits aimed to further individual and community health. This demands at least a semester course of organized health instruction on the junior high school level and a semester or year course on the senior high school level, equivalent in length and regulations to other standard courses, to be required of all students. These courses should be taught by adequately prepared teachers and for a requirement for graduation.
9. At the elementary level at least 40 minutes daily, exclusive of recess periods, devoted to planned physical education activities suited to the grade level involved.
10. At the secondary level (grades 7 to 12) a daily period of vigorous physical education. This period should be at least as long as the regulation class period, and be scheduled within the

school day. Pupils should be classified in respect to sex and grade, ability or special needs. Standards should be set for passing the course in all grades, and acceptable performance required for promotion and graduation.

11. Expert supervision and direction at local and state levels as for other fields. In some instances the training of a person may qualify him to supervise both health and physical education.
12. The strengthening and extending of advisory and consultative services of the U. S. Office of Education in these areas.

Further school efforts to improve the physical fitness of youth could wisely be directed toward (1) extension of health inventory and correction of defects in the preschool years; (2) insuring sound mental health; (3) improvement of child nutrition through the provision of adequate school lunches; (4) provision of camping and other extended school services contributing to health; (5) systematic coöperation with all community health efforts such as tuberculosis case finding, venereal disease control, and maternal and child health clinics.

II. It is recommended that teacher training institutions be urged to include in their program for training teachers, instruction and practice in the daily observation of children for the purposes of detecting signs indicating possible deviations from normal health and development.

III. It is recommended that professional training institutions be urged to revise if necessary their programs for the training of teachers of health and physical education and of recreation leaders to give special consideration to promotion of health and physical fitness.

IV. It is recommended that teacher training institutions be urged to give some training in the conduct of physical fitness activities to all prospective teachers.

V. It is recommended that plans be perfected for giving special consideration to post-war planning of school facilities toward better provision for coördinated school and community health and physical education programs and for extended community use of school facilities.

ARMY TO USE INFLUENZA VACCINE

According to a recent announcement of the War Department, plans are under way for a vaccine to combat the spread of influenza should the disease occur in epidemic form. The Commission on Influenza under the Army Epidemiological Board, has stated that the vaccine will not be administered routinely but will be given only on definite indication of the threat of influenza and only to personnel under risk of exposure to the disease. The Commission on Influenza, of which Dr. Thomas Francis, Jr., Professor of Epidemiology at the University of Michigan School of Public Health, is the director, carried out in 1943 a control clinical trial of the prophylactic efficacy against epidemic influenza of a concentrated vaccine containing the killed influenza viruses Types A and B. In coöperation with a number of civilian and military agencies an extensive investigation was carried out showing that there was a reduction of about 75 per cent in the incidence of influenza among the vaccinated as compared with the unvaccinated controls. It was also established that the illness of vaccinated persons was milder and shorter. The vaccine which was used was developed by Dr. Francis and Dr. Jonas E. Salk and their associates.

EFFECTIVENESS OF ULTRA-VIOLET DISINFECTING LAMPS IN SCHOOLS

A report has recently been released by the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association bearing on the question as to whether the installation of ultra-violet lamps in schoolrooms for sterilization of the air is warranted. According to this report, the Council on Physical Therapy of the American Medical Association does not accept ultra-violet lamps for which claims are made that they will prevent cross-infection in schoolrooms or will disin-

fect solids. This Council acceptance of ultra-violet disinfecting lamps is limited to installations in hospital nurseries, hospital wards, and operating rooms.

". . . satisfactory evidence is not available to warrant acceptance of ultra-violet lamps for disinfecting solids. To kill a microörganism a direct hit by ultra-violet rays of sufficient intensity is required. This is difficult to accomplish on the edge of a drinking cup, for example, also in a liquid containing suspended matter or in air laden with dust particles that shield the organism. Ultra-violet radiation cannot penetrate deeply and hence may be absorbed by finger marks, saliva, cosmetics, or other foreign matter on a drinking cup. In view of the present available evidence, ultra-violet radiation appears to be an uncertain means of sterilizing solid objects (drinking cups, combs, brushes, shaving utensils, toilet seats, and shoes) even if irradiation of the whole surface is possible. Ultra-violet lamps are not accepted for disinfecting air in schools, waiting rooms, public gathering places, and large halls. The evidence now available does not indicate that the incidence of colds can be reduced by the installation of ultra-violet lamps and by the irradiation of an enclosure occupied by people.

"It must be remembered that injurious physiologic effects may arise from prolonged ultra-violet irradiation of a person. Overdoses of ultra-violet rays will produce conjunctivitis and a serious erythema. Since the occupants of the room must be shielded from the rays, the space containing the highest concentration of infectious microörganisms is not irradiated. Those droplets laden with bacteria and emitted by the infected person are distributed so that they are freely inhaled by a recipient long before the natural or artificial flow of air will carry the droplets to the irradiated spaces. It follows, therefore, that disinfecting lamps are of little or no value in preventing cross-infection in schoolrooms."

USING RESULTS OF HEALTH EVALUATION

The Birmingham-Jefferson County Public Health Committee of the Birmingham Chamber of Commerce (Alabama) has demonstrated how to use the results of a health evaluation effectively. Following the submission of a schedule to the American Public Health Association for the National Health Honor Roll, a most attractive eight page pamphlet has been issued which reproduces the critical comments from the American Public Health Association in interpreting the local schedule. The Health Officer, Dr. George A. Denison, writes to the American Public Health Association:

"The 1943 evaluation study has been most helpful to this department, both in pointing out weaknesses and need for strengthening certain fields and in developing better public relations and understanding."

But better yet the Health Committee includes in the pamphlet what has been done in correcting weak situations and what is going to be done in the future. There is every indication that Birmingham and Jefferson County are serious about public health protection and mean to build a strong program.

ADVERTISING AGENCY SURVEYS COLDS

Dr. Travis P. Burroughs, Health Officer of Portland, Me., reports that information has been solicited by telephone and personal visit from the residents of Portland who were asked to supply the record of recent colds to the "Public Health Survey Research Department."

According to Dr. Burroughs, this survey is under the auspices of Morse International, Inc., Advertising, 122 East 42nd Street, New York, N. Y., of which M. F. House is President. The solicitors are alleged to claim representing the Health Department in soliciting the information.

THE AMERICAN CANCER SOCIETY, INCORPORATED

Announcement has been made by the American Society for the Control of Cancer, Incorporated, New York, N. Y., that the name of this organization is now changed to the American Cancer Society, Inc. In the future the society's lay organization, the Women's Field Army, will be known as the Field Army, and men as well as women will

be identified with this work. J. Louis Neff has become Executive Director, and George B. Larson, formerly assistant secretary of the Wisconsin State Medical Society, Madison, has become director of publicity and public relations. According to the society's announcement, the society plans to expand and to extend its efforts not only to educate the public but to obtain from the public funds for cancer research, diagnosis, treatment and education.

AMERICAN RED CROSS APPOINTS MEDICAL COMMITTEE

Basil O'Connor, Chairman of the Central Committee, American Red Cross, has announced the appointment of a Special Medical and Health Committee to survey current Red Cross operations of a medical and health character and to recommend plans for the post-war period. On the committee the following members have been appointed:

Dr. Lewis H. Weed, *Chairman*, Washington, D. C., Division of Medical Sciences, National Research Council
Dr. Felix J. Underwood, *Vice Chairman*, Jackson, Miss.
Dr. George Baehr, New York, Director of Clinical Research, Mt. Sinai Hospital
Dr. Wilburt C. Davison, Durham, N. C., Dean and Professor of Pediatrics, Duke University, School of Medicine
Dr. Morris Fishbein, Chicago, Editor *Journal of the American Medical Association*
Dr. Alan Gregg, New York, Director of Medical Sciences, Rockefeller Foundation
Major Gen. Norman T. Kirk, Washington, D. C., Surgeon General, U. S. Army
Dr. Frank H. Lahey, Boston, Lahey Clinic
Dr. Roger I. Lee, Boston, President elect, American Medical Association
Vice Admiral Ross T. McIntire, Washington, D. C., Surgeon General U. S. Navy
Dr. Thomas Parran, Washington, D. C., Surgeon General U. S. Public Health Service

Dr. Henry R. Viets, Boston, will act as Secretary of the committee.

In announcing the committee, Mr. O'Connor said:

Medical and health problems touch virtually every aspect of Red Cross activities, whether in terms of disaster relief, nursing, accident prevention, nutrition, or blood donations. Because of this vital relationship to the general Red Cross program, I have asked 11 prominent medical and health experts to serve as a special committee to survey what we are doing currently, analyze the results achieved, and give me a blueprint of possible Red Cross Activities in these fields in the post-war period. The group appointed was chosen because of their familiarity with operations of the American Red Cross in the medical and health fields.

PERSONALS

Central States

WILLIAM A. CORCORAN, M.D., has been appointed Health Officer of Ishpeming, Mich., succeeding NEAL J. MCCANN, M.D.

DOUGLAS S. FRYER, M.D., D.P.H.,† resigned August 11 as Assistant Director of the Bureau of Local Health Services, Michigan Department of Health, Lansing, Mich., to join the Wyeth Laboratories, Philadelphia, Pa.

E. C. ROSENOW, M.D.,† who since July 1, 1944, has been Emeritus Professor of Experimental Bacteriology, Mayo Foundation, Graduate School, University of Minnesota, has accepted an invitation to join the California Institute of Technology, Pasadena, where he will continue his research.

Eastern States

DONALD W. CRITTENDEN, M.D., Mansfield, Pa., has been awarded the first Fellowship in Industrial Medicine at the School of Medicine, University of Pittsburgh, according to an announcement by Dr. T. Lyle Hazlett, Medical Director of the Westinghouse Electric and Manufacturing Company, Pittsburgh. The Fellowship

* Fellow A.P.H.A.
† Member A.P.H.A.

has been made possible through a grant from the James S. Kemper Foundation of Chicago.

H. JACKSON DAVIS, M.D., DR.P.H.,* Chief Medical Officer of the State Department of Social Welfare, Abany, N. Y., has been granted leave of absence to accept a commission as Major in the Civil Public Health Division, U. S. Army Medical Corps, which is developing public health policies and practices in liberated and occupied countries.

GUSTAV J. MARTIN, SC.D., has been appointed Research Director of the National Drug Company, Philadelphia, Pa.; he has been Assistant Director in Charge of the Division of Chemistry for the Warner Institute for Therapeutic Research, New York, N. Y.

Southern States

LAMAR A. BYERS, M.D., Jackson, Tenn., has been appointed Health Officer of Coos County, Ore., with headquarters in Coquille.

LYNN M. GARNER, M.D., M.P.H.,† District Health Officer, Higginsville, Mo., was appointed Director of the Division of Maternal & Child Health of the State Board of Health of Missouri, Jefferson City, Mo.

FRANK M. HALL, M.D., has resigned as Director of the Limestone County Health Unit, Athens, Ala., to organize a similar unit in Gainesville, Fla.

MILLARD C. HANSON, M.D., DR.P.H.,* has resigned as City Health Director of Richmond, Va., and has been appointed Medical Director for the American Red Cross in charge of the Pacific Area office, San Francisco. Dr. Hanson's territory will include 7 western states and Alaska.

LOVE E. PENNINGTON, M.D., Superintendent of the Milledgeville, Ga., State Hospital, has been appointed to a similar position at the Madison State Hospital, North Madison, Ind.

HERBERT P. RAMSEY, M.D., Washington, D. C., has been appointed Chairman of the Health Division of the Washington Council of Social Agencies.

HENRY W. TOBIAS, M.D., for more than 6 years Chief Medical Officer of the Veterans Administration Facility, Columbia, S. C., has resigned.

WILLIAM J. WALTER, M.D., Pikeville, Ky., has been appointed Director of the Pike County Health Department.

FRED J. WAMPLER, M.D., DR.P.H.,* Professor of Preventive Medicine at the Medical College of Virginia, Richmond, Va., has resigned to accept a position as Medical Director with the Rustless Iron & Steel Corporation, Baltimore, Md., effective October 1.

Western States

THOMAS H. BIGGS, M.D., has been appointed Health Officer of Kelso, Wash., in addition to his work as Health Officer of Cowlitz County.

JOHN H. FOUNTAIN, M.D., M.P.H., has been appointed Medical Director of the Morningside Tuberculosis Hospital, King County, Wash. Dr. Fountain is a graduate of Georgetown University in medicine and of the Harvard School of Public Health. He has served recently as Health Officer of Weld County, Colo., and as Health Officer of Denver.

EMIL E. PALMQUIST, M.D.,† Seattle, Wash., Health Officer of King County, has been elected President of the Washington State Social Hygiene Association.

Foreign

JOSEPH S. MAXWELL, M.D., formerly missionary to Ethiopia, has been appointed physician at Wheaton College, Ill.

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* Fellow A.P.H.A.
† Member A.P.H.A.

Deaths

PROFESSOR ISRAEL JACOB KLIGLER,* occupant of the Jacob Epstein Chair of Bacteriology and Hygiene at Hebrew University, Palestine, since 1926, died on September 23.

MARY MCCORMICK, R.N., of the State Department of Health, Albany, N. Y., died on September 2.

SENIOR SURGEON LIEUEN M. ROGERS, M.D., of the U. S. Public Health Service, Fort Worth, Tex., died of a heart attack on September 7.

* Fellow A.P.H.A.
† Member A.P.H.A.

CONFERENCES AND DATES

American Society of Heating and Ventilating Engineers—51st Annual Meeting. Hotel Statler, Boston, Mass. January 22–24, 1945.

American Water Works Association—
- New Jersey Section—Hotel Madison, Atlantic City, N. J. November 2–4.
- Four States Section—Benjamin Franklin Hotel, Philadelphia, Pa. November 8–10.
- Virginia Section—John Marshall Hotel, Richmond. November 14–15.
- South Dakota Water and Sewage Works Conference. Lincoln Hotel, Watertown, S. D. November 14–15.
- Florida Section—Suwanee Hotel, St. Petersburg, Fla. November 16–18.
- New York Section—Mid-winter Luncheon Meeting, Pennsylvania Hotel, New York, N. Y. January 17, 1945.

Annual Seminar on Reading Disabilities. Pennsylvania State College, State College, Pa. January 29–February 2, 1945.

Association of Military Surgeons of the United States. Hotel Pennsylvania, New York, N. Y. November 2–4.

Civil Service Assembly—Conference on Public Personnel Administration. Chicago, Ill. November 1–3.

Florida Public Health Association. Gainesville, Fla. December 4–6.

Institute of Medicine of Chicago—Postgraduate Assembly on Nervous and Mental Diseases and War. Palmer House, Chicago, Ill. November 1–2.

Michigan Public Health Association. Grand Rapids, Mich. November 1–3.

National Chemical Exposition—Sponsored by the Chicago Section of the American Chemical Society. The Coliseum, Chicago, Ill. November 15–19.

National Committee for Mental Hygiene—35th Annual Meeting. Hotel Pennsylvania, New York, N. Y. November 8–9.

New Mexico Public Health Association. Santa Fe, N. M. November 8–11.

New York State Association of Public Health Laboratories — Midyear Meeting. State Laboratory, Albany, N. Y. November 17.

U. S. Public Health Service—National Conference on Post-war Venereal Disease Control. St. Louis, Mo. November 9–11

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A dry, concentrated product, Dicoloid is readily applied in paste form with a wet brush. Penetrates, dissolves and suspends milkstone deposits through its powerful wetting and cleaning action . . . its casein and mineral dissolving properties. Safe to hands or utensils. Agricultural Experiment Stations have shown that milkstone is often the cause of high bacteria counts in milk,

In the plant with DILAC

Diversey Dilac has been specially developed to quickly and effectively remove the stubborn contamination that forms daily on short-time, high temperature pasteurizing units. . . . Softens and dissolves milkstone so it can be completely removed with a minimum of time, labor and material. Write for technical bulletin "Milkstone Control." The Diversey Corporation, 53 W. Jackson Blvd., Chicago 4.